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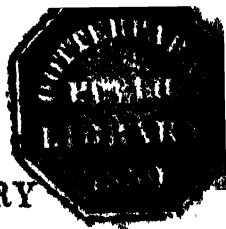
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STATISTICAL INQUIRY
INTO THE
FREQUENCY
OF
STONE IN THE BLADDER,
IN
GREAT BRITAIN AND IRELAND.

By RICHARD SMITH, Esq.

SENIOR SURGEON TO THE BRISTOL INFIRMARY.

COMMUNICATED BY

DR. LAIRD.

Recd. Jan. 18, 1820.

IN the year 1735, Bristol had the honor of setting to the rest of England the example of a Provincial Infirmary, supported entirely by the voluntary contributions of her citizens and neighbours. At that period there was nothing of the kind out of the metropolis. Indeed its foundation is nearly co-eval with, or precedes altogether by many years, every charitable institution for the relief of the sick and hurt poor, even in London, together with Scotland and Ireland; royal and chartered foundations excepted:

To this institution my father died senior surgeon, in 1791, having received from his predecessors a sufficient number of calculi to form a nucleus for a collection. Being elected myself in 1796, I have been enabled from time to time to add to those taken from my own cases the specimens removed by Messrs. G. Lowe, Noble, Yeatman, Metford, Allard, and Bowles.

It gives me also great pleasure to acknowledge that my friends and hospital colleagues, Messrs. Hetling, R. Lowe, Daniel, and N. Smith, have in the most liberal manner contributed the calculi from their several private and infirmary patients. I am also under obligations to Messrs. Goldwyer, Salmon, Estlin, Mortimer, Burroughs, J., C., and M. Yeatman, Jefferies, Griffiths, Sully, Soden, and Martindale; together with Doctors T. W. and Robert, Dyer, Dr. Felix, Dr. Wallis, and in a very particular manner to Dr. W. H. Gilby.

The books of the faculty at the house, have been kept from its foundation with a correctness which has enabled me to make out very readily the subsequent Tables, for an unexampled number of years.

The perusal of Dr. Marcet's treatise, which shews most lamentably the paucity of records, together with the general spirit of inquiry upon the subject, induced me to think that a few statistical

memoranda might not be unacceptable, since it is only by individual contribution that general results can be obtained. I thought it would also be desirable to inquire whether the complaint was more or less frequent than it used to be; and I conceived that no better means existed of approximating to a solution of the question than a research at the various public charities. Trusting therefore to the liberality of my professional brethren for credit that my motive was a disinterested one, I took the liberty of addressing a franked letter to every provincial hospital for information. I was not deceived. From the officers of each, my application met with the most polite, and in several instances, such friendly attention, that I should be very ungrateful if I neglected this opportunity to return to those gentlemen my best acknowledgments, and also to add, that it will give me great pleasure to make them any return in my power.

It also gives me great satisfaction to lay before the public a proof that those institutions are open to medical research upon proper application; but it cannot but be mingled with a regret, that in several instances the means of information did not keep pace with the wish to afford it. Let us hope that in future this neglect will be remedied, not only in the country, but also in the capital, where the great hospitals have set such an example of remissness in the non-preservation of chirurgical documents.

TABLE I.—Patients received into the Bristol Subjects came.

	Bristol City and County of itself.	Bath.	Somerset.
From the year 1735 to 1740	8	...	5
1740 to 1750	36	5	10
1750 to 1760	35	4	11
1760 to 1770	29	2	10
1770 to 1780	16	1	6
1780 to 1790	16	4	5
1790 to 1800	18	1	1
1800 to 1810	8	1	3
1810 to 1817	7	...	...
Total in 82 years, as nearly as can be ascertained.	173	18	51
<p>The following List of places in the column of each County, indicates the precedence in order of frequency; thus, in Somersetshire, Shepton Mallet sent us the most; Frome the next; and Yeovil the least, &c.; and so on of other places. We have had occasional Patients from most of the Counties in England, but it was not thought worth while to specify them.</p>			<p>Shepton Mallet. Frome. Freshford. Pensford. Stackton. Uphill. Chard. Publoe. Ashton. Ditcheat. Yeovil.</p>

Infirmary, exhibiting the Counties from whence the

Wilts.	Gloucester.	South Wales, together with Monmouthshire.	Devon.
2	3	...	...
6	7	6	..
9	6	6	2
9	7	4	...
4	3	1	1
4	2	4	...
2	3	6	...
1	2	2	...
1	2	...	...
37	35	30	3
Chippenhamsent as many as all the rest of the County. Bradford. Corsham. Devizes. Marlborough. Malmesbury. Melksham.	Kingswood. Marshfield. Bitton. Gloucester City. Wooton. Mangotsfield. Winterbourne. Upton on Severn. Stroud. Newport. Henbury. Westbury.	Neath. Chepstow. Newport. Carleon. Aberdare. Carmarthen. Haverfordwest. St. David's.	Topsham. Taunton. From N. Wales none. Herefordshire. From Leominster one in the year 1792.

When the Bristol Infirmary was founded, there was no Provincial Hospital in the Kingdom.

In 1736 was founded the Winchester, distant from us 73 miles.—In 1743, the Devon and Exeter opened, distant 76 miles.—The same year, the Northampton, 97 miles.—In 1747, the Shrewsbury, distant 103 miles.—In 1749, the Worcester, distant 62 miles.—In 1756, the Gloster, distant 35 miles.—In 1766, the Oxford, distant 70 miles.—In 1767, the Salisbury, distant 53 miles.—In 1775, the Hereford, distant 50 miles.—In 1779, the Birmingham, distant 87 miles.—In 1788, the Bath Casualty Hospital, distant 12 miles.—In 1792, the Bath City Infirmary and Dispensary.

The above memoranda of the dates of the several institutions are added, in order to assist the judgment in forming an opinion whether the defalcation in cases we have experienced of late years, may have been caused by patients going to other infirmaries.

TABLE II.—A Scale of relative frequency of Calculous Cases at various Periods during 82 Years, at the Bristol Infirmary.

PERIODS.	Numbers cut.	Number of both In and Out-Patients in that time.	Which is equal to One in
From 1735 to Dec. 1740	16	1665	104
1740 to 1750	61	13878	227½
1750 to 1760	83	29640	356½
1760 to 1770	62	38675	623¼
1770 to 1780	40	37174	929½
1780 to 1790	36	40269	1118½
1790 to 1800	32	37517	1172¼
1800 to 1810	16	30989	1936¾
1810 to 1817, seven years	10	26632	2663½

In the year 1776, a Dispensary was established in Bristol, which has also received during the 42 years 43,184 applicants; the whole of whom would probably have otherwise come to the Infirmary. There was no stone case among them, for if there had been, it would have been sent there.

TABLE III.—A Scale of the Fatality of Calculus, at different Ages, at the Bristol Infirmary.

Ages.	Cured.	Died	Females.	Periods of ten years.	Cured.	Died.	* Total.	Equal to one death in
1	no case		...	Under 10.	106 including 2 females.	29	135	4½
2	1 case*		...					
3	11	6	1					
4	19	3	1					
5	16	4	...					
6	12	2	...					
7	13	4	...					
8	5	2	...					
9	20	5	...					
10	10	3	...					
11	8	3	...	From 10 to 20 inclusive.	52 including 3 females.	13	65	5
12	13	3	1					
13	8	2	1					
14	4	1	...					
15	3	1	...					
16	4	1	...					
17	2	...	...			
18	4	1	1					
19	4	1	...					
20	2	...	...			
21	5	2	...	From 20 to 30 inclusive.	30 including 1 female.	5	35	7
22	2	1	...					
23	1	...	...			
24	4	...	...			
25	3	1	...					
26	2	..	...			
27	4	...	...			
28	2	...	1					
29	4	...	...			
30	3	1	...					
31	3	1	...	From 30 to 40 inclusive.	27 including 1 female.	7	34	5
32	3	1	...					
33	3	...	...			
34	1	...	1					
35	2	1	...					
36	5	...	...			
37	3	1	...					
38	4	...	...			
39	2	1	...					
40	1	2	...					

* No operation.

Ages.	Cured.	Died.	Females.	Periods of ten years.	Cured.	Died.	Total.	Equal to one death in
41	4	From 40 to 50 inclusive.	26	11	37	3½
42	2	1	...					
43	3	1	...					
44	3	1	...					
45	2	2	...					
46	2	1	...					
47	2	...	...			
48	2	1	...					
49	2	...	...			
50	4	4	...					
51	2	1	...	From 50 to 60 inclusive.	22	6	28	4½
52	2	1	...					
53	2	...	...			
54	4	1	...					
55	1	...	...			
56	2	1	...					
57	3	1	...					
58	3	...	...			
59	1	...	...			
60	2	1	...					
61	1	From 60 to 70 inclusive.	11	7	18	2½
62	1	1	...					
63	1	3	...					
64	1	...	...			
65	1	...	...			
66	2	...	...			
67	1	...	...			
68	1	...	...			
69	2	1	...					
70	...	2	...					
71	From 70 to 80 inclusive.	1	1	2	2
72	...	...	...		
73	...	...	...		
74	...	...	...		
75	...	1	...					
76	...	...	...		
77	...	...	...		
78	...	...	...		
79	1	...	...			
80	Total	275	79	354	4½

Several more patients were cut, but their ages are not known, and therefore they are not included in the above list.

CLASSIFICATION OF SPECIMENS IN THE COLLECTION.

IN the following numerical classification of specimens, it must be understood that none are perfectly pure ; many having occasionally a slight admixture of other substances, and all being more or less compacted by animal matter. Each is however put into that class to which the great bulk of the calculus belongs.

Lithic acid entirely (except animal mucus) . 74
The largest single calculus among these weighs $5\frac{1}{2}$ oz. ; a great number singly, 3 and 4 oz. In several instances 3, 4, 5, and 6 calculi were removed at one operation, weighing from half an oz. to 2 and 3 oz. each. All the *gravelly* specimens are invariably lithic acid, with one single exception.

Lithic acid nucleus, more or less thick, surrounded by earthy phosphates *12
In this class the late Mr. Godfrey Lowe cut a subject, aged 79, removed 3 calculi, and cured his patient in a few weeks. There is no specimen of a lithic acid nucleus coated by oxalate of lime in the collection. If this be the case

in other museums, there must be some cause for this curious fact.

Bone earth calculus, phosphate of lime . 1

Several specimens of depositions in the lungs of phthisical persons, in the liver, and in the uterus, are all of this description.

Ammoniac-magnesian phosphate, or calculus in which this triple salt prevails almost exclusively 1

It weighs an ounce, is very white, porous, and friable; it belonged to the late Mr. Morgan Yeatman.

Fusible calculi, being composed of the ammoniac-magnesian phosphate mixed up with phosphate of lime 18
The largest weighs 4 oz.

Foreign bodies coated with the fusible matter. A pin, a piece of bougie, and 4 pieces of stick. The latter were thrust up the urethra during the agonies of retained urine . . . 3
I have a calculus from a dog, which is very easily fusible.

Mulberry, or oxalate of lime, with the exception of animal matter, tolerably pure . 33
The largest weighs an ounce and a half; from a patient of Mr. Henry Daniel's.

Oxalate of lime, coated with earthy phosphates 32

The largest was from a patient of my late father's, and weighs 2 oz. and a half.

Oxalate of lime, coated by lithic acid 29

I know of no instance amongst the calculi in which oxalate of lime prevails, where more than a single calculus was found in the same bladder. Qy. Is this *always* the case?

Alternating calculi, consisting of regular layers stratum super stratum 10

In one cut by the late Mr. F. C. Bowles, are beautifully displayed four regular deposits, viz. oxalate of lime, lithic acid, oxalate of lime and lithic acid mixed, and externally ammoniaco-magnesian phosphate of lime. In this class is one 5 oz. removed by the late Mr. Morgan Yeatman, from a lad about 16, A. D. 1783. The subject is now in Bristol, with a very large family in good health. In every instance in this class the nucleus is oxalate of lime. Qy. Is it so in other collections?

Compound calculi, in which the ingredients are mixed up together 8

Two of those, both cut by Mr. Richard Lowe, are curiously shaped.

Calculi from the prostate. One set consisting of

about 30, the size of a small pin's head; they are phosphate of lime.

The kidney stones are some oxalate of lime, and others lithic acid. One given to me by the late Mr. J. P. Noble, appeared to have afflicted the patient thirty years.

The bezoars, from the intestines of horses, 30 in number, consist invariably of ammoniaco-magnesian phosphate. The nucleus in each is either a piece of an iron nail, or of lead, except in one large specimen given to me by Mr. W. Mortimer, where the nucleus is a stone of some fruit; it was brought from Cadiz curiously encircled with brass, and dated 1682. It was always considered to have been a human urinary concretion, until I sawed it open, when its nature was no longer doubtful.

A kidney stone, weighing 5 oz., from a horse which was shot when 25 years old, is composed of carbonate and phosphate of lime.

Carbonate of lime. Of this substance, there are ten specimens taken from the urinary bladders of several pigs. The largest weighs an ounce and a half; they are invariably compact, dense, ponderous, and capable of a good polish. Small ones of the size of peas, are common in these animals, and I have a great many of them.

Carbonate of lime is not enumerated by Dr. Marcet as a substance entering into the composition of human calculi. The fact, however, is indisputable. Dr. W. H. Gilby of Clifton, whose knowledge of the subject is unquestionable, and to whose friendly aid I am chiefly indebted for the various analyses, has detected it decidedly in four instances. A notice of it will be found in Mr. Tilloch's Journal for 1817, vol. 49, p. 188, in the account of a curious calculus given to me by Mr. G. M. Burroughs of Clifton; the nucleus of which is a common cinder, an inch and a half long, and one broad. Since the publication of that paper, Mr. H. Sully of Wiveliscombe sent me three oddly shaped calculi, which he removed from a lad, together with fifteen pea-sized ones previously voided by the urethra, which are entirely carbonate of lime, held together by animal mucus. To prevent all possibility of mistake, I sent a few to Dr. Marcet, who found the analysis correct, although from their appearance he at first considered them (as I did myself) to be oxalate of lime. I am not aware of any other instance in which gravel is not composed of lithic acid.

There is in the museum no specimen either of the fibrinous, or of the xanthic, or of the cystic-oxyd-calculus.

Amongst the models is one of a calculus weighing ten ounces and a half, and nearly ten inches

in circumference, removed from an elderly gentleman who was perfectly well in eleven weeks; the date being 1740. What is the largest calculous case upon record which did well?

Of secondary calculus, four instances only have come to my knowledge, a male and a female at the Chester Infirmary, by Mr. G. Rowland, and a man at the Bristol, by the late Mr. Godfrey Lowe, after an interval of four years. Sixteen years have now elapsed since the second operation, without any recurrence of the complaint; both calculi are alike, being an oxalate of lime, nucleus in a segment of a circle, surrounded by fusible matter. The fourth is a lad from Wales, whom I cut about eight years since.

The late Mr. J. P. Noble cut the son, myself a daughter, from the same parents, which is the only instance that has come to my knowledge of more than one case in the same family, although my inquiries have been directed to this point; and many of the boys cut, have belonged to numerous families.

At the infirmary, seven females only have been cut in eighty-three years; and within the last thirty years, about four in private practice in, and near Bristol. In the last female case, the calculus was removed through the urethra by me with a pair of

pocket forceps very easily. It is triangular and about an inch wide.

In the fitting up of the cabinet, the following method has been pursued. Each calculus has been neatly sawed through the center, in the direction of the long flat axis, and every part of it chemically examined. Both pieces are then well cleaned and gummed to a card; one exhibiting the untouched nucleus and whole internal surface, and the other the coating, by which means the mutilations are concealed; the card is cut sufficiently large to hold commodiously the name of the operator and the date, the name of the patient, his age and place of residence, the weight and brief analysis of the calculus, and a minute of the result of the operation. Should there be any thing worthy of more detail or remark, it is written upon the back, and thus every card is in itself a complete epitome of the case.

Having cut through nearly three hundred calculi, my experience enables me to recommend the following method. Make the saw a fixed point between your breast, and an immovable body, and holding the calculus evenly and steadily in the hand, rub it against the teeth. The blade *ought* to be as wide as the calculus, but if a common metacarpal is used, the danger of breaking the calculus is greatly lessened by thrusting a bit of card into the slit made by the saw. The teeth must be frequently cleaned, and I have found the best

means to be a constant drop of water made with a piece of rag over the lip of a jug, and acting as a syphon, and so placed as to drop pretty fast upon your work, which will then be very pleasantly and speedily performed.

The mulberry calculi, those from the hog, and some others, are so hard, that it will be requisite to have a small file, just to sharpen your saw now and then. Indeed if you have many to divide, you will much shorten the labour by frequently re-touching a few of the teeth. The appearance and beauty of the calculus will be very much heightened by rubbing the flat surface with a little water upon a smooth even stone, and the harder specimens may be afterwards finely polished by friction against the palm of the hand ; but it will be in vain to attempt this with the soft ones ; even the latter, however, may be well, but gently, cleaned after the sawing with a common nail brush without any injury.

THE following is the result of the inquiry, as to the number of patients cut at the various provincial charities, and also in private practice.

BATH City, Inhabitants 31,496. All Somersetshire, Bath included, 303,180.

The population generally is taken according to the census of 1811, and certainly very considerably under the actual present amount.

The Casualty Hospital was founded in 1788 by Mr. James Norman, formerly one of the surgeons to the Bristol Infirmary. From this gentleman I learn that there was no case of lithotomy, until the year 1801 ; since which time there have been six. Mr. George Norman has also cut three private patients. At the General Hospital operations are not performed.

The Bath City Infirmary and Dispensary, opened in 1792. It makes up 20 beds ; the annual average number of in-patients, 191 ; out-patients, 1650. To this institution Mr. John Smith Soden is one of the surgeons, and from him I learn that the total number of stone cases from the commencement, are, one by the late Mr. Crutwell in 1810, and four others by himself. In one case 3xss of calculous

matter were removed from a pouch in the urethra, the bladder being free from disease. Mr. Soden has also had three private cases, in one of which the calculus weighed eight ounces. Mr. Richard Taylor has sent me urethral concretions from four patients. The above, together with a lady and a gentleman who died uncut, I have reason to believe make nearly, if not entirely, the sum total of calculous patients in Bath, for the last 30 years. Of the patients cut at Exeter, 2 in 10 years were from Somersetshire; and 6 in the same period of time were cut in Bristol.

GLOUCESTER City, Population 8280. The County, excluding Bristol, 209,081. (The Infirmary opened in 1756.)

Summary of a letter from Mr. Ralph Fletcher, the senior surgeon. From 1807 to 1811, there was one case in each year; in 1812, four; in 1813, three; in 1814, one; in 1815 and 1816, three; in 1817, five, one a female. Of these, eight were cut by Mr. Fletcher. There are no records preserved for a longer period. The annual average of in-patients is about 170, and the out 560. Mr. Fletcher succeeded the late Mr. Trye in 1814. The latter cut 40 patients in the preceding 25 years; of which number 4 were private. This gentleman had acquired celebrity as a lithotomist, and had in consequence a much larger portion of the infirmary cases, than his colleague, the late Mr. Nayler.

Dr. Dobson's report, published in 1779, states, "Out of 12,490 patients since the commencement of this infirmary, 21 have been cut; that is, 1 in 594." Dr. Cheston in his letter to Dobson, says, "May not the difference of the numbers cut at the County Hospitals, depend upon the reputation of the several surgeons, from their inclination or disinclination to lithotomy, more than from any provincial cause? At a County Hospital now established some years, no patient was cut until lately, the surgeons sending them all to London." Dr. Dobson replies, "the circumstances here pointed out, have been particularly attended to through the whole inquiry."

HEREFORD City, 7306. County Population, 89,073.

Summary of a letter from Mr. J. Cam. In 1804 succeeded his father, who had been elected at the commencement of the charity in 1775; from which period to the present, there has not been one single applicant with stone, although there have passed the books, 16,248 patients. The average yearly numbers in the house at a time are 30 or 40; and 60 or 70 out.

Mr. Thomas Griffiths, now practising in Bristol, was Apothecary to the charity many years, and confirms the statement. I am not aware of lithotomy having been performed in the county. Dr. Dob-

son's report from Dr. Cam, is to the same effect.

WORCESTER City, 13,814. Population of County, 160,546. (Infirmary opened. 1749.)

Summary of a letter from Mr. William Sandford, senior surgeon. Has been at the charity 25 years, during which time, there have been at irregular periods, 9 cases, and Mr. S. had cut three private patients, all males. Number of in-patients about 460, and out 1500 yearly. The house holds 62 persons.

Dr. Dobson's report. "During the last 12 years, 25 patients have been cut here out of 7752 persons, that is, 1 in 310." "I do not recollect," says Mr. Russel, the doctors' correspondent, "that any one case came from Herefordshire, and I believe that the disease is less frequent there than in this, or the neighbouring counties."

SALISBURY City, 8243 inhabitants. County of Wilts, 193,828. (Infirmary opened, 1767.)

Summary of a letter from Mr. Henry Coates. No records. During the 14 years Mr. C. had been surgeon, he had cut five, and his colleague, one, all males; only one case in private practice within his knowledge; considers the disease rare in his neighbourhood. Three of the above persons came

from a considerable distance. In patients yearly 509, out 998.

Mr. W. H. Goldwyer of Bristol, has a cabinet containing 92 calculi, the greater part the result of operations by his great grandfather, who died in 1748, after practising at Salisbury during 54 years. But they were not all patients in the neighbourhood, since some of them are marked, Andover, Kingswood, Southampton, Bristol. Mr. G. considers that he possesses only the wreck of the collection, as no care was taken of them before they descended to him. I am under great obligations to this gentleman for many valuable contributions to my museum.

OXFORD. Exclusive of 2000 students, 11,813 inhabitants. The County 119,191. (The Radcliffe opened 1770.)

Summary of a letter from Mr. W. Tuckwell. In ten years, 12 cases, all males. Six children and six adults. One case only died. Mr. T. has sounded eight persons in the neighbourhood; four will probably undergo the operation.

DEVON and EXETER. The population of the city is 18,896. (Opened in 1743.)

The following valuable document will speak for itself:

May 3, 1818.

DEAR SIR,

THE Surgeons of this Hospital have endeavoured to send you a correct account of the number of stone cases admitted into it during the last 12 years. The return is made from a careful examination of the Hospital books of admission, aided by their recollection, and particularly by that of Mr. Luscombe, the Senior Surgeon to the Charity. There may possibly be some omissions, but they believe very few cases had been passed over. They wish they could have sent you a return in every respect satisfactory.

I have also returned 10 years' averages of the number of in-patients since 1746, with corrected averages of the whole number of patients since that period. This Hospital may be considered as embracing very nearly all the stone cases amongst the poor of this county, and of some part of the adjoining counties of Somerset, Dorset, and particularly of Cornwall. Operations for the stone, out of the Hospital, are *very rare*.

The population of Devon in 1811, was 383,000. One may fairly calculate the Hospital to have within its circle the stone operations (with very few exceptions) of a population of 600,000. The population of Cornwall exceeding 200,000. I have

not heard of one instance among the richer classes; of 20 patients, 6 came from the neighbourhood of Dartmouth or Brixham, 4 from Exeter and its immediate vicinity, 2 from Somerset (Taunton and Wellington), 2 from Cornwall, 2 from Okehampton, 4 from other parts of the county.

YEARS.	Patients Total Average Yearly.	In- Patients Average Yearly.	Number of Stone Cases discharged as cured.	Average in each year.	Propor- tion to	Whole number of Patients.	In- Patients.	Greatest Number in any year.
1746 to 1756.....	566	375	30	3	1	188	125	6 in 1756
1756 to 1766.....	965	660	17	1 $\frac{7}{10}$	1	568	391	3
1766 to 1776.....	1038	706	21	2 $\frac{1}{10}$	1	494	336	4
1776 to 1786.....	1142	837						
1786 to 1796.....	1455	991						
1796 to 1806.....	1158	788	6 or 7 in 1803, 4 and 5					
1806 to 1816.....	1084	712	16, perhaps 18 (2 females)	1 $\frac{6}{10}$	1	627	445	4 in 1809
1811 to 1818.....	1095	744	9	1 $\frac{7}{10}$	1	942	577	3 in 1811

THE return from 1811 may be considered as quite correct. Of 9 patients admitted the whole were discharged cured, no death having occurred. In the 5 years prior to 1806, no death occurred to the best of my recollection whilst a pupil. From 1806 to 1816, 2 deaths happened, which would make the number admitted 18 instead of 16, But I have calculated to the latter number, as the early returns from 1746 to 1776, were of patients cured only. Since 1806 there have been 3 females, of the ages of 5, 15, and 46. Should you wish for any farther information in respect of the contents of this letter, or should you wish me to institute any other inquiries, I shall have much pleasure in complying with your request.

The decrease of the proportion of stone cases, to the general population, and the patients in this hospital, within the last few years, is, from the foregoing table, very obvious. Of any plainer cause for such decrease, I am ignorant. Cyder is certainly less a liquor in use amongst the poorer classes than formerly, from the failure of crops, the high price, and the greater market for it in London. Many of our patients however were children who probably rarely tasted cyder. I do not know if the proportion of stone cases to the population brought within the sphere of the hospital, is greater than in other parts of the kingdom;

but this might be easily ascertained perhaps by the returns of other hospitals.

Your faithful Servant,

SAMUEL BARNES.

Dr. Dobson's report, in 1779. "Dr. Glass informs me that 'stone and gravel are common diseases amongst the lower classes in this county; at the Infirmary, out of 26,606 patients, 75 have been cut,' that is, 1 in 355."

WINCHESTER City, Inhabitants 6705. Hampshire, 245,080. (Founded in 1736.)

Summary of a letter from Mr. Mayo. No records older than ten years. Messrs. Lyford and Wickham both concur with Mr. M. in the opinion, that stone cases are much less frequent than formerly, and that they have gradually declined in nearly the same ratio as at Bristol. From 1808 to 1817 there were cut 14, all males, ages from 6 to 60. One female died, in whose bladder a calculus was found. A boy was also admitted *in articulo mortis*, whose bladder was nearly filled with calculous concretions. Mr. Lyford has operated upon a few private cases, and there are in the neighbourhood 2 or 3 persons, known to have calculi who will not submit to any operation.

BIRMINGHAM City, 85,753 inhabitants. Warwickshire, 228,735.

Summary of communications from Mr. George Freer, and Mr. J. Hodgson, and Mr. Jukes. Opened in 1779. Patients cut in 38 years, including 5 females, 72; cured 59; died 13; 1 in 5 and 8 over; less than 1 in 6 died. In 38 years, 31010 in-patients; making less than 1 stone case in 430. The greater number of cases occur in 1814, when 5 were cut. In 4 scattered instances there were 4 annually; in all the rest, the numbers are 3, 2, 1, and 0, in the year; the average number cut, being rather less than 1 yearly. Lithotomy has more frequently been performed in private practice in the neighbourhood than formerly.

At COVENTRY, the city and county population of which amounts to 23787, Mr. J. S. Soden of Bath, cut a patient in 1812. He says "the disease is there so rare that I believe lithotomy has not been performed more than once during the preceding 50 years."

CAMBRIDGE City, 11,108. County 101,109.

Addenbroke's Hospital opened in 1766. A. D. 1817, in-patients, 446; out, 434.

Cambridge, Jan. 25, 1818.

SIR,

I AM requested by my colleagues Messrs. Thomas Bond, C. Lestourgeon, John Oakes, and L. S. Abbott, to answer the queries you favoured us

with relative to calculous patients; and this request is made, because, as I have been more than forty years surgeon to Addenbroke's Hospital, and as I am likely to have heard of every operation in the county, they have been pleased to consider me as better acquainted than any other person with the subject of your inquiries.

It appears to me that calculous complaints prevail very little in this county and much less in the southern than in the northern part of it. As far as I can recollect, of the patients who have offered for lithotomy, both in private practice and in the Hospital, during the time I have been surgeon to it, the average is rather less than four patients annually, and by far the greater part of that number have come from the northern part of the county; besides, those which are included in the average, I have to state, that in the Hospital, four females have been operated upon by opening the meatus urinaris laterally, and one by dilatation of it. See Medico-Chirurgical Transactions, Vol. VIII. Part II. In private practice, a female was delivered from three very large calculi, which by their magnitude, I presume had produced sphacelus of the whole of the meatus urinarius; and from another female two very large calculi were removed after the division of a few fibres of the meatus; the girth of the larger one at its long axis $5\frac{1}{8}$ inches, at its short axis $4\frac{1}{8}$ inches, of the smaller one and its long axis $3\frac{3}{4}$ inches, its short axis $2\frac{1}{2}$ inches. From a male after death, a calculus of prodigious size was taken

away, it measured in girth at the long axis $9\frac{1}{8}$ inches, and at the short axis $7\frac{1}{8}$ inches. It may be useful to observe, that this last patient had taken for 20 years all the various remedies called solvents. Our Hospital is on a small scale, yet large enough at present for the number of patients who offer, and I have inclosed a statement of the number which have been admitted in the different years since its opening, and as I imagine that every circumstance relative to your inquiry may be interesting to you, I have gone further than your letter expresses, and I have only to add, that of those operated upon, not more than one in twenty has died, and that calculous complaints seem to keep their usual standard in this county. I beg to ask, whether the decrease in calculous patients at your Hospital, may not originate in the increase of Hospitals, and that, owing to the general improvement in operative surgery, more operating surgeons are spread over this country?

With the most respectful compliments of my colleagues,

I am, Sir,

Your very obedient Servant and Friend,

T. V. OAKES.

Dr. Dobson reports in 1779 "that out of 6600 ins and outs, 4 only have been cut, that is, 1 in 1650.

NORTHAMPTON, City 8427. County 141,353.
(Infirmary opened in 1743.)

Extract of a letter from Mr. J. Elderton. No records; but Dr. Kerr, and his colleagues, Dr. Lockett and Mr. J. Rudsdell, have remarked for some years, a defalcation in about the same ratio as at Bristol. There have been no private operations. The Establishment accommodates about 84 persons; and there are as out-patients in attendance about 110. In 1817, ins and outs, 2665. The cases from Huntingdon where the population is 42,208, are probably shared between this Hospital and Cambridge.

CANTERBURY, City 10,200. Kent 373,093. (The Infirmary opened A. D. 1793.)

Extract of a letter from Mr. T. Culling, house-surgeon and apothecary.

	Cases.	In and out patients.
During the 1st five years	3	amongst 40
Do. in the 2d	3	. . . 100
Do. 3d	6	. . . 120
Do. 4th	8	. . . 150
Do. 5th	7	. . . 170

} yearly.

In the last four months 4 Besides 2 persons in whom the operation was not thought advisable. It has seldom occurred in private practice.

NORWICH, City 37,256. Norfolk, 291,999. Suffolk, 234,211. (Opened in 1771.)

The report published by Dr. Marcet is so honorable to this Infirmary, and so satisfactory, that I considered it unnecessary for me to trouble the

surgeons upon the subject. In the last 40 years 506 operations were performed, that is, $11\frac{1}{2}$ yearly. Of these 70 have died, that is, 1 in $7\frac{1}{4}$, or 4 in 29. The proportion of females to males is 1 to 17. Mortality in children 1 in 18; in adults 4 in 19, or quadruple. The number of persons annually admitted as in-patients in the last ten years, amount to 530; in the preceding ten, 440; and before that, the average was about 428.

Cases of Stone.

From 1772 to 1782	.	100
1782 to 1792	.	120
1792 to 1802	.	116
1802 to 1812	.	137

So that there appears to be no increase in number. Do the numbers of private cases keep pace with the public ones? I am happy to learn by a letter addressed to me by Dr. Yelloly, late Physician to the London Hospital, that he has availed himself of his removal to Norwich, to inquire into the principal facts relative to the occurrence of calculus in Norfolk, with a view to ascertain whether any light can be thrown on the circumstances producing a liability to that disease.

SHREWSBURY, City 18,583. County of Salop 194,298. (Opened in 1747.)

Extract of a letter from Mr. H. E. Burd, house-surgeon. Average number about 2 in 3 years; the private cases are in the same proportion; all males.

From one old subject, 28 calculi were removed. 700 in, 1500 out patients yearly. In the opinion of the surgeons, stone cases are rare in Shropshire. Mr. William Sandford, now of Worcester, was house surgeon to this Institution from 1777 to 1784, during which 2 males and 1 female were cut.

Dr. Dobson's account. Out of 13,167 patients, 8 have been cut, that is, 1 in 1646. Those patients were, 1 a townsman, 4 from the country, and 1 from Montgomery.

STAFFORD, City 4868. County 295,153. (Opened A. D. 1766.)

Extract of a letter from Mr. Henry Somerville. No official records; but in the opinion of Mr. Hughes, who has been attached to the Institution 50 years, the cases about the middle of that period, annually amounted to 5 or 6. Mr. Somerville has been surgeon these 18 years, at the earlier part of which it was usual to have 3 or 4 operations annually; but latterly, although the number of applicants to the institution has more than doubled, there have been only 4 in 4 years. Each of the above gentlemen has cut 2 private patients, which appear to be all which have occurred. There has been no female case. The subjects have been chiefly from 4 to 12, and from 65 to 76 years of age; scarcely any in the middle periods of life.

A. D. 1798 in-patients 336, out 870.

1817 . . . 749, . 946.

LEICESTER, Borough 23,146. County 130,087.
(House opened 1771.)

Summary of a letter from Mr. J. Marshall, house surgeon. Average number of last 12 years, 3 every year. In patients, yearly, 686 ; outs, 3680.

Dr. Dobson's account. Since its opening, amongst 1912 patients, 3 have been cut ; and in the bladder of another, who had no previous symptoms, a calculus was found ; these 4 make 1 case in 478 patients.

CHESTER City, Inhabitants 16,140. Cheshire 227,631. (Opened in 1755.)

Summary of a letter from Mr. G. Rowlands, the senior surgeon. During the 32 years, Mr. R. has been at the ~~the~~ charity, the number of cases have been in 1787, 1791, 1795, 1796, 1813, 1815, one in each year ; of those, 1 was a girl, 2 cases were natives, and 4 came from North Wales. In private practice Mr. R. cut 5 males and 1 female, the latter, and one of the men had been cut before ; 3 of the private cases were cut 70 miles from Chester, in North Wales, where there were two other old subjects labouring under the complaints. In-patients,

yearly, 625; out, 1691. The house contains 70 at a time.

Dr. Dobson's account. Dr. Haygarth informs me that from his own observations and from extensive inquiries, he is enabled to state; that in Cheshire, during the last 12 years, 5 have been cut, and 2 died without the operation. In the Infirmary, since its establishment (24 years) 1 only has been cut out of 12,334 in and out-patients during that time. If to this statement, says Dobson, we add 1 from Chester cut at Manchester in 1763, the proportion will be 2 in 12,334, or 1 in 6167. Dr. Haygarth adds, "minute inquiries authorize me in stating that in North Wales, calculus is a very uncommon disease, as I cannot learn that more than one has been cut and six died who were supposed to be afflicted with the disease."

DERBY, the Borough 13,043. County 185,487.

Summary of a letter from Mr. R. B. Godwin one of the surgeons. House opened 1810. No case until 1812. Since which there have been 6, all males. Mr. G. operated upon 3 of those in 1816. Patients last year, in, 254, outs, 427. The cases had probably, previously to 1810, been distributed between Chester, Stafford, and Nottingham.

NOTTINGHAM, Town 34,252. County 162,900.
(House opened in 1782.)

Summary of a letter from Mr. Robert Thompson, secretary. In 36 years, 64 cases chiefly operated upon by Mr. J. Attenburrow, who has also cut in private practice between 30 and 40. Mr. John Wright has also cut a few in private practice. Patients last year, in, 433, out, 1340. Patients in 36 years, 40,742.

Lancashire, the County population 828,309.
Contains 2 Infirmarys, Liverpool and Manchester.

LIVERPOOL, population of the Borough, 94,376.
(House opened in 1749.)

Summary of a letter from Dr. L. J. Jardine. During the last 10 years, 8 or 9 have been cut. Patients during 1817, in, 1314, out, 1623. Attached to the Infirmary is a Lunatic Asylum which contains 86 persons.

Dr. Dobson says, I have, from the observation and experience of 20 years, ascertained that in this place, and the western parts of Lancashire, stone is an unfrequent disease. Out of 26,073 hospital patients, 6 only have been cut ; that is, 1 in 4,345.

MANCHESTER, Town 98,572 Inhabitants. (House

opened in 1752. "Infirmary and Dispensary.")

Summary of a letter from Mr. Thomas Bingham, house apothecary. Mr. William Simmons, the senior surgeon, and his colleagues, Messrs. G. Hamilton, Thorpe, Ransome, Ainsworth, and Thorpe, jun. report that stone cases are by no means so numerous as they were, which they attribute to the Establishment set on foot at Sheffield nineteen years ago, and also to the number of private surgeons of talent and enterprise now resident in Lancashire, who operate upon cases which would otherwise come to the Infirmary.

From the year 1809 to 1818, the cases were year after year, 2, 5, 3, 2, 3, 2, 7, 1, 2, 2; of these there was cut 1 patient at the several ages of $2\frac{1}{2}$, 6, 9, 12, 17, 19, 20, 36, 42, 46, 47, 50, 52, 61, 66, and 67 years, 2 at the ages of 4, 5, and 13, 3 aged 8 each, and 4 at 15. Total number of patients placed upon the books, from June, 1816, to June, 1817, 14,360. A number so large, compared to other charities, that until I was favored with a printed statement, I had considered my correspondent to have been in error; but I found it correct.

Dobson's account. Out of 34,565, in 26 years 62 have been cut; that is, 1 in 557. Of this number, 12 were townsmen, 8 from Sheffield, 4 from

Halifax, 3 from Congleton, 3 from Ashton, 3 from Wigan, 2 from Derby, 2 from Bolton, 1 Bury, 2 Rochdale, 2 Lancaster, 1 Chester.

LINCOLN, City and Liberty, Inhabitants 8861. County 208,557. (House opened in 1769.)

Summary of a letter from Mr. J. Swan, one of the surgeons. No regular records. During the last 5 years there have been 5 cases; ages, 22, 52, 64, 74; the man at 64 died; the 3 others were cured; the fifth would not submit to an operation. 400 persons in all apply for relief to the charity yearly. It is the opinion of Mr. Boot, the senior surgeon at the Establishment, and the oldest surgeon in Lincoln, that there are not many private operations in the neighbourhood.

YORKSHIRE. Population, East Riding, 167,353. — North, 152,445. — West, 654,313. — Total, 974,117.

YORK, N. Riding. City, Inhabitants, 18,217. Neighbourhood very populous. (House opened in 1740.)

Summary of a letter from Mr. James Atkinson. No regular records. About 15 cases in about 16 or 20 years; 2 only died; of the 15 Mr. A. cut 10. The surgeons are of opinion that cases were more frequent formerly.

Dr. Dobson's account in 1779. In this hospital out of 23,735, 50 were cut for the stone, that is, 1 in 474.

SHEFFIELD in West Riding, Town 35,840. (House opened 1798.)

Summary of a letter from Mr. William Staworth. From the commencement to this time, 17 persons have been cut. In A.D. 1817, the in and out-patients were 2,233. Previous to the foundation of the Charity Mr. S. had, in a private practice of 24 years, cut 40 patients. Among the 57 there were two females.

LEEDS, W. R. Town and Liberty, Inhabitants 62,534. (House opened in 1767.)

Summary of a letter from Mr. Josias Stanfield, the senior surgeon, being a correct copy from the surgeon's book. Since the commencement of the charity to September, 1817, there have been placed upon the books, 76,386 persons. The Establishment has been a few years since enlarged, and now makes up 100 beds.

	Stone Cases. Cured. Died.		
From 1767 to 1777	24	16	2
1777 to 1787	62	32	8
1787 to 1797	23	8	3
1797 to 1807	42	19	7
1807 to 1817	46	29	8
In fifty years	197	104	28

Sixty-five would not undergo the operation. In the whole number there were 9 females, but only 2 were cut. The ages of the patients were :

83 ten years old and under.

21 between 10 and 20

21 : 20 : 30

12 : 30 : 40

28 : 40 : 50

21 : 50 : 60

9 : 60 : 70

2 : 70 : 80

The result of a calculation is that they have one case and a fraction in 387 persons.

Mr. S. thinks there are not many cases in private practice, but that the disease has considerably increased of late years, among the lower orders, several persons being cut at the Halifax Dispensary. In consequence of this information, a letter was addressed to that charity.

Dr. Dobson's account of the disease at Leeds in 1779. Out of 7851 patients, 23 have been cut, that is, 1 in 340.

HALIFAX. General Dispensary opened in 1808 ; receives no in-patients ; the outs are about 2000 annually. There was 1 operation during the first 5 years. From 1812 to 1819 inclusive, 21 submitted, of which number 9 were upwards of 50, the oldest 75. In one female the urethra was success-

fully dilated ; two refused permission. There are now 7 cases of calculi upon the books ; 1 a child of two years old, upon whom an immediate operation will be performed. About two years since, a gentleman from Halifax was cut in London ; and 2 paupers went to Leeds.

Private cases ; one in 1814, and one in 1819, — in 1818 ; one case was cut near the borders of Lancashire.

Messrs. J. Sunderland and W. Garlick, from whose favor I extract the above, say, “ We are jointly consulted by 6 or 8 annually.”

By the census of 1811, the parish of Halifax contained 75,000 inhabitants, it is now raised to 80,000. Halifax itself has about 10,000 souls.

HULL in E. R. Inhabitants 21,229. (Opened 1784.)

Summary of a letter from Mr. J. Young, the senior surgeon. Since 1801, 10 cases. Previous to that time, no operations for 10 or 12 years. In and out patients on the books at a time about 295. Very few private cases. Mr. Y. is not aware that patients now go elsewhere to be relieved, but previously to the establishment of the Infirmary (as this gentleman learns from the elder practitioners) there was no surgeon for at least half a century in the

neighbourhood of Hull bold enough to undertake the operation.

NEWCASTLE. United Infirmary for Northumberland and Durham, opened in 1751. The town itself, inhabitants 27,587. Northumberland 172,161. Durham 177,625. Receives cases from a population of 349,786, with the exception of those who go to Sunderland, where no case has occurred for the last twelve years at least.

Summary of a letter from Mr. Thomas Leighton, the senior surgeon. In 1798, there were 9 cases; after which until 1817 the numbers yearly in succession were 4, 3, 0, 1, 5, 2, 2, 2, 3, 2, 2, 3, 4, 3, 0, 3, 0, 1, 5; 2 were females, making 54 cases in 29 years. Average number of patients in and out for the first 10 years, 1113. During the latter years, 1486. From April, 1816, to April, 1817, 909; out 767. Cumberland and Westmoreland, together with the borders of Scotland, probably contribute also from a population of at least 200,000.

Dr. Dobson's account published in 1779, says, "Out of 26,619 patients in this Infirmary, 93 have been cut for the stone, that is, 1 in 287."

EDINBURGH. Royal Infirmary opened 1741.

From my late pupil, Mr. Henry Goldwyer, I learn that the admissions are about 2000 yearly,

and this is the only Institution in the neighbourhood where operations are performed. The number of cases are about 3 or 4 in as many years. Dr. Duncan's letter to Dr. Marcet says, "there are not more than six in the last six years."

ABERDEEN. Mr. A. C. Hutchison says "in the last 5 years 10 operations."

The shire contains 135,075 inhabitants.

Of ST. ANDREWS and GLASGOW I have no information.

The population of all Scotland is about 1,600,000.

IRELAND. Population about 4,250,000.

Dr. Thomas Egan, of Dublin, physician to Simpson's Gouty Hospital, says, "considering the extent of our population, the stone is of relative rare occurrence; so much so, that the late Mr. Dease, with all his well-deserved celebrity as a lithotomist, never operated upon more than 60; a small number indeed, if we consider that the operation is seldom, if ever attempted in the country." The Doctor has however unfortunately not mentioned the duration of Mr. D.'s career as a lithotomist, which prevents us from drawing any statistical inferences. See Vol. X. of Royal Irish Academy

Transactions, in 1805. He adds also, "our students are astonished at the frequency of the operation in London."

My friend Mr. Thomas Peall, Veterinary Professor to the Dublin College, made inquiries for me of Mr. Crampton, Dr. Collis, the Anatomical Professor, and of several other gentlemen of eminence in Ireland; and their general opinion was, that the disease is comparatively unfrequent in that country, but there are no authentic records.

I had lately the pleasure of shewing Mr. R. Carmichael our Infirmary, and his guess is, that the average number annually cut at Dublin is 8, and about 4 for all the rest of Ireland.

At Sligo, Mr. Bell cut two in 10 years.

From Dr. Gibbons, who has long resided in Cork, I learn that there have not been 6 cases during the last 20 years.

A
GENERAL SUMMARY

RESPECTING THE
FREQUENCY OF CALCULOUS DISORDERS IN
GREAT BRITAIN, ACCORDING TO THE
PRECEDING REPORTS*.

Bristol.—At the Infirmary during the last 82 years there have been cut about 361 persons ; but if we make divisions of this period we shall see that the numbers have regularly diminished in a very remarkable degree, so that at present we have from 3 to 4 in two years, and formerly there have been more than 6 in one year.

	Years.	Cases.	That is about
From 1735 to 1770	. 35	. 222	. $6\frac{1}{3}$ yearly.
1770 to 1800	. 30	. 108	. $3\frac{1}{2}$
1800 to 1817	. 17	. 31	less than 2

Within the last 20 years, not more than 10 private operations have been performed either in the city itself or within a circle of 8 or 10 miles around its boundaries, although we are surrounded on all sides by exceedingly populous villages, and lie on the borders of two large counties ; add to this the easy and constant communication with Wales, which gives us almost an exclusive preference for the whole southern parts of the principality.

* It is to be presumed that several operations were performed not included in the records.

About a year ago, a patient was cut at Monmouth, which I believe to be the only operation ever performed on the other side of the Severn.

Bath ;—18 in 20 years ; not one annually for all the rest of Somersetshire known to have been cut ; there were 12 at Exeter, and 6 at Bristol in 10 years, making less than one annually. All the county, therefore, Bath included, gives about 1 and $\frac{4}{5}$ every year.

Glostershire ;—for the last 61 years average 1 and $\frac{5}{6}$ yearly.

Worcestershire ;—from 1767 to 1779 averaged 1 and $\frac{1}{25}$ in two years. During the last 25 years the cases averaged a fraction more than 2 annually ; a considerable increase.

Wiltshire ;—sent to Bristol from 1750 to 1770, 18 cases ; and from 1770 to 1790, 8 cases. Probably several were cut at Salisbury also in the above 30 years. In the last 14 years the county sent to Bristol 5 cases, and 7 were cut at Salisbury, but of these, 3 came from elsewhere. The total, however, will not make one yearly.

Oxfordshire ;—12 cut, and 8 uncut ; call them 20 in 10 years, will be 2 annually.

Devonshire and Cornwall ;—from the year 1745 to 1775, 30 years, 65 patients, that is, $2\frac{1}{4}$ annually.

From end of 1802 to end of 1805, 3 years, 7, that is, 2 and $\frac{1}{3}$. From 1805 to 1816, 11 years, 18, that is, 1 and $\frac{2}{3}$.

Hampshire;—from 1808 to 1817, 9 years, 20 cases, that is, $2\frac{1}{9}$ annually.

Warwickshire;—during the last 38 years, less than 1 annually at the Infirmary. Perhaps after the same rate in private practice.

Cambridgeshire;—from 1766 to 1799, 4 only, that is, rather more than 1 in 4 years; during the last 40, about 4 annually, a great increase. Probably this Infirmary and the Northampton include the cases from Huntingdonshire.

Northamptonshire;—from 1 yearly to 3 in 2 years; occasionally 2 in the year.

Norfolk;—during the last 40 years, $11\frac{1}{2}$ yearly.

Kent;—during the last 25 years, about 1 and $\frac{1}{3}$ yearly.

Salop;—from 1747 to 1779, 13 years, 8 were cut; of late about 4 in 3 years, that is, 1 and $\frac{5}{3}$ annually, a considerable increase.

Staffordshire;—for some years before or after the year 1792, there were 5 or 6 *per annum*; about 1800

it fell to 3 or 4 ; and of late amounts to 1 yearly. The disease here lessens very considerably.

Leicestershire ;—from 1771 to 1779, 8 years, 3 cut, that is, $\frac{3}{8}$ in a year ; during the last 12 years, there have been 3 annually ; a very great increase.

Cheshire ;—from 1755 to 1779, one only at the Infirmary. Private cases 6. From 1787 to 1817, in all 12 ; making in 30 years, 12 cases, equal only to $\frac{6}{15}$ in a year. Even the greater part of these, came from North Wales, the cases from which Chester appears to have exclusively.

Derbyshire ;—6 in 7 years, that is, not one annually.

Nottinghamshire ;—in 36 years, 64 public and 40 private, 104, nearly 3 annually ; the proportion of private exceeds apparently any other county.

Lancashire ;—Liverpool. From 1749 to 1779, 30 years, there were 6 cases. For the last 10 years there were about 9 ; being rather less than 1 a year.

Manchester ;—from 1752 to 1779, 26 years, 62 cut, that is, 2 and $\frac{2}{3}$ yearly. From 1809 to 1818, 10 years, 29 cut, nearly 3 *per annum*. All Lancashire therefore was formerly rather more than 2 and now is nearly 4.

Lincolnshire ;—one annually.

York city ;—from 1740 to 1779, 50 cases, being 1 and $\frac{1}{4}$ annually, or 5 in 4 years. There are now about 15 cases in 20 years, that is, not one a year.

Sheffield ;—from 1774 to 1798, 40 cut, rather less than 2 a year. From 1798 to 1817, 17 were cut, less than one annually.

Leeds ;—from 1767 to 1817, 197 cut, and 65 uncut ; total in 50 years, 262 ; $2\frac{1}{4}$ annually. Any division of this time contains nearly the same average of patients.

Halifax ;—during the last 7 years, 24 cases ; more than 3 annually.

Hull ;—from 1801 to 1817, 10 cases in 16 years.

In all *Yorkshire* there are cut about 8 or 9 annually, according to the reports sent to me.

Northumberland, Durham, and probably a great part of *Cumberland* included ;—from 1751 to 1779, 28 years, 93 cases ; being rather less than $3\frac{1}{3}$ annually. From the year 1798 to 1817, being 19 years, there were 29 cases, which is nearly $1\frac{1}{2}$ yearly.

THE CONCLUSION.

IN the several counties of England and Wales, the numbers which have come under my cognizance, are about 60 *per annum*; let us take also half of that number to cases of which I have no record, and we shall have 90 for county operations.

London is surrounded by counties which have (with the exception of Kent) as far as my information extends, no public institutions where lithotomy is performed; their population therefore must probably resort in time of need to the metropolis.

From Dr. Marcet's book we learn that the numbers are yearly upon the average, of St. Bartholomew's about 11; at Guy's 10; at St. Thomas's 6; here that gentleman's list ends. I have therefore troubled Dr. Laird to procure for me farther information, and the result of his inquiries is this: that there are cut yearly upon an average, at St. George's 5; at the London between 4 and 5; at the Westminster 3; at the Middlesex 3; and at the various other dispensaries or charities perhaps from 4 to 5; the sum total therefore of public cases in London will be about 47.

Being quite unable to make even a guess at the

number of private operations, I addressed a letter of queries to Dr. Marcet, who had kindly promised me any assistance in his power. The following is an extract from his reply :

August 18, 1819.

MY DEAR SIR,

Your letter reaches me at my native place, Geneva, where I shall pass the winter, which will prevent me from introducing your paper as I promised, to our Society.

I remember distinctly once making a rough calculation on the number cut in London, with Mr. Astley Cooper. I guessed the whole at 100, but Mr. A. C. doubted whether there were so many as 50 private cases. Regretting I am not able to stand godfather to your paper,

I remain, &c. &c.

The opinion of the gentleman whom Dr. Laird consulted upon this point is, that there are not more than 30 cases in private practice ; making the total for the metropolis about 77. Mr. A. C. Hutchison's valuable paper has satisfactorily proved that in our three great naval depots at Haslar, Plymouth, and Deal, it amounts to only one patient in two years ; and that at Yarmouth and Peignton, as also at Jamaica, Antigua, Barbadoes, Gibraltar, Malta, the Cape, Madras, and in our foreign possessions

generally, the operation has never been performed.

I do not think that in Scotland the yearly amount is more than 12, and the same number may be reckoned for Ireland. Finally then, it will follow if the premises be correct, that 191 will be the sum total of cases in lithotomy both at home and abroad, and I verily believe that if we take them, for the sake of round numbers, at 200, we shall have the very extreme point of calculous cases for our whole population.

This communication already occupies too great a length to add to it much comment, but one cannot help being struck with the curious fact, that certain districts abound in cases, whilst in others the disease is scarcely known. Let us instance Norfolk and Hereford; and again it is a surprising truth that in the hospital at Norwich alone the numbers are as great as either in all Ireland or Scotland.

Surely there must exist some cause for this, and as an inquiry may lead to some practical knowledge in what is at present I fear an opprobrium medicorum, I cannot but hope that it will be made.

For myself, if in this paper I have produced a

statistical nucleus for the accumulation of future facts, I shall consider myself very sufficiently repaid for my labour, having no other views than to contribute my mite to the general professional information upon which the comfort and happiness of our fellow creatures are so exceedingly dependant.

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SUCCESSFUL CASE
OF
LITHOTOMY.

By CHARLES MAYO, Esq.

OF WINCHESTER.

PRESENTED THROUGH
MR. ABERNETHY.

Read March 28th, 1820.

CHARLES GILBERT, aged 28, was admitted into the hospital under my care on the 25th of November, 1818, with stone in the bladder. He had been sounded more than twenty years before, and a stone having been then discovered, there was every reason to suppose that a calculus of very considerable magnitude must by this time have been formed. His sufferings were at intervals extremely acute, and such as kept him in a very emaciated and debilitated state. He had hitherto been dissuaded from undergoing the operation by the timidity of his friends, but finding every other resource hopeless, they had now consented to it, and as his mind was made up for the operation, he was

anxious that an early day should be fixed for it. On sounding him, the stone appeared to be of great solidity, and the bladder very capacious, propelling a large quantity of pale urine with great force.

On Thursday, December the 3rd, I performed the operation of lithotomy, with a common scalpel, as is my constant practice, after the manner of Cheselden, and I made a large and deep external incision, and then cutting into the side of the prostate gland, as far back as I could reach, I brought the knife out along the groove of the staff into the membranous part of the urethra. I then readily passed my finger into the bladder and touched the stone; but finding it to be very large I took a probe-pointed bistoury, and dilated the wound in the neck of the bladder. I then introduced the forceps, but found that when dilated to the greatest extent, they were hardly capacious enough to grasp the stone, in consequence of which it repeatedly escaped from my hold. At length, after many very forcible attempts in which I was assisted by one of my colleagues, Mr. Wickham, I brought the stone to the verge of the lower opening of the pelvis, and held it there securely by the forceps when Mr. W. passed a strong iron scoop under the arch of the pubes, which acted as a lever to prevent the stone from slipping out of the forceps, and assisted in its extraction. By the combined action of these instru-

ments, applied with all the force we could exert, the stone fortunately broke into several large fragments, which I then readily extracted. A considerable hæmorrhage followed the first incision, but it was very trifling after the urine began to flow from the opening into the bladder, which it did, in large quantities. The stone was in its texture very compact, but when broke, a sort of nucleus of rather a lighter colour and about the size of an apricot stone, fell out as from its centre. The whole when united and accurately replaced, which was easily done by means of a little glue, weighed fourteen ounces and two drachms avoirdupoise weight; it measures eight inches and a half in its smallest circumference, and rather more than ten in its largest*.

I accomplished the first steps of the operation, as far as led to the opening into the bladder, without any difficulty, but the extraction of the stone occupied more than half an hour; the wound in the bladder was dilated by means of the bistoury to such an extent, that I believe the stone, large as it was, came out without any laceration, it was several times brought completely into the perineum, and was only obstructed in its exit by the rami of the ischia and pubes.

My patient of course was extremely exhausted,

* See Plate I. fig. 1.

and nothing but the frequent application of stimuli in every shape, both externally and internally, prevented him from sinking. Soon after the operation, the pulse, from being imperceptible, gradually rose to near a hundred, soft and weak. In the evening, it was fuller and 120. He passed a good night, and the urine flowed copiously from the wound. Dec. 4th. Twelve leeches were applied to the hypogastrium which, with warm fomentations, removed a considerable degree of pain and tenderness in that part; he had had a good motion last night and another to-day. In the evening the pulse rose to 140, and the tongue was dry, but he suffered no pain and was in good spirits. Dec. 5th. He had passed a good night, in the course of which he had two or three relaxed stools. Pulse 120; tongue moist. The tenderness still continuing in the hypogastrium, six more leeches were applied, which bled largely and seemed to make him very faint. He ate chicken broth, arrow-root, panada, &c. In the evening he was more revived; had had more stools; pulse quicker; tongue dry; ordered small doses of laudanum with spt. ammon. arom. Dec. 6th. Had slept well, but the bowels being still relaxed, he took the pulv. cret. c. c. op. with wine, strong broth, arrow-root, &c.

He remained in the hospital till the 24th of March, 1819, when the wound had contracted to the size of a crow-quill, and he passed water freely

by the urethra. . So far as relates to the healing process, nothing could have gone on more favourably; for although of great extent, the wound gave no more trouble than an ordinary case. His appetite was good, and he slept well, but his general health had been so much impaired by long continued suffering previous to the operation, and he was so much reduced by a general tendency to diarrhoea, that I thought it better for him to go home, hoping that a change of air might have a salutary effect upon him. For the first week or two after his removal, he walked about and seemed to gain strength; the diarrhoea however again returned and the urine became very turbid and offensive. He now found a great degree of tenderness in the left buttock and in the wound, and at length a small abscess formed and burst into the wound by an opening which assumed the appearance of that which occurs in fistula in ano. This occurrence broke up, as it were, the wound afresh, and the spongy granulations arising from the abscess impeded the process of cicatrization. The application of a solution of sulphate of zinc, and the occasional use of the lunar caustic, has however reduced this unhealthy action, and the wound is again getting quiet, and contracting.

June 1st. For a few days past he has had a very painful swelling in the right axilla, which has happily been dispersed by leeches, &c. The wound

gives no trouble except from excoriation by the dribbling of the urine ; he wears an elastic catheter occasionally. The diarrhoea and sickness return at intervals. July 30th. His general health does not amend, and unfortunately the house in which he lives is very confined, consequently the heat of the season has been very unpropitious to the re-establishment of his strength. The wound remains quiet and disposed to contract, and I have no doubt would heal completely were it not for the deficiency of tone in the system. The friends are averse to sending him into the country on account of the inconvenience arising from the frequent necessity for changing his linen, and from a false delicacy on exposing his infirmities to strangers. He has had no pain in the loins nor any symptom of disease in the kidneys, but occasionally the urine has been loaded with a purulent and ropy matter, and sometimes small portions of coagulated blood have been discharged. The pulse has been uniformly quick and weak, from 100 to 120, and was observed to be so before the operation. Since the removal of the stone, which is now more than nine months ago, he has enjoyed an entire freedom from pain; and notwithstanding the many drawbacks which his enfeebled constitution has sustained, I have every reason to believe that his recovery will be ultimately complete.

Sept. 20th. The wound will hardly admit the

passage of a probe, but his dyspeptic symptoms and occasional diarrhoea still harass him, and he has lately had a good deal of pain, with a throbbing sensation in the loins ; he has also now and then a painful attack of dyspnoea.

HISTORY

OF A

CASE OF LITHOTOMY.

By W. B. DICKINSON, Esq.

MEMBER OF THE COLLEGE OF SURGEONS, LONDON ; AND ONE OF THE
SURGEONS OF THE MACCLESFIELD DISPENSARY.

COMMUNICATED BY

MR. BRODIE.

Read March 20, 1820.

THOMAS CLAYTON, aged 62, of a spare habit, applied to the Macclesfield Dispensary on account of a complaint which he supposed to be stone in the bladder, and for the relief of which he was desirous to submit to the operation of lithotomy, if it should be considered proper. He had laboured under the symptoms of the disease nearly 30 years, which had gradually reduced his comfort and strength to the lowest degree. At the time of his application to the Dispensary he was unable to retain any quantity of water in his bladder, and that which he passed deposited profusely upon settling a purulent sediment. Upon the introduction of a commonsized sound, a firm structure was discovered at the membranous portion of the urethra; and a

smaller having been passed, the point of the instrument, immediately after clearing the prostate gland, struck against a stone which completely prevented its further progress into the bladder. The point of the sound being retained in this position, the finger was introduced into the rectum where the outline of a large and hard tumour could be distinctly traced. From this examination it became evident there was a stone in the bladder of very unusual size; and considerable surprise was excited that the alimentary excretions could be passed in a solid state. On pressing upon this tumour the patient experienced very acute pain, much exceeding in degree that which had been occasioned by the introduction of the sound. The perineum had been extensively lacerated in early life, the wound having extended to the urethra. A fistula in perineo was the result of this accident, which continued some time. The cicatrices were in a state nearly approaching to cartilaginous hardness; from this period the patient dated the beginning of his disease.

Under these circumstances several important considerations presented themselves requiring mature deliberation. First, the propriety of operating at all in such a case. Secondly, which of the several operations should be adopted; and lastly, the instruments to be used.

As to the first question, it was observed that some

surgeons considered the operation inexpedient whenever matter could be clearly distinguished in the water; the kidneys being, in all such instances in a diseased state, and the operation universally unsuccessful. In reply to this it was the unanimous opinion of the surgeons of the Dispensary that the patient could not exist many weeks under his sufferings, and as a chance of recovery, however faint, would be afforded by operating, his own wishes being also strongly in favour of such a measure, the operation was decided upon.

The second point to be considered was the mode of operation to be adopted. The stone was unquestionably of large size; this was decisively ascertained by computing the distance between the point of the sound and that of the finger in the rectum, which appeared to be in extent not less than four inches. Professor Scarpa, Mr. Samuel Cooper, and other eminent surgeons had recommended, whenever the stone was discovered to be of very large size, the performance of the high operation. Against this mode it was stated that the irritability of the bladder was too great to admit its distention by urine, consequently it could not be made to rise freely above the pubis, and from the size of the stone it was impossible to lift up the bladder by any instrument passed by the urethra, nor could so ample a passage for the discharge of matter and urine be afforded as to remove the apprehension of effusion into the surrounding cellular

membrane with its consequent dangers. Should a catheter or canula be left in the bladder for the prevention of this mischief, much hazard would be incurred of increasing diffusive inflammation by the presence of an extraneous body in the bladder already disposed to inflame from the performance of an operation so severe. To these objections another was added, that the high operation had become obsolete in this kingdom, which most probably was in consequence of the want of success attending it. These considerations led to the final adoption of the lateral operation.

With regard to the last question, *viz.* what instruments should be employed, very little hesitation arose. Experience upon the dead subject amply proved the great superiority of the knife over every other instrument. With the knife an incision more than twice the extent of what the gorget could accomplish, could be safely effected, and its direction determined by circumstances during the operation. The particular knife selected was the one used by the late ingenious Mr. Gibson.

Having thus decided upon the propriety of operating and the mode of operation to be adopted, I proceeded on the 1st of May last to the performance of it, assisted by my colleagues of the Dispensary, whose suggestions and aid materially conduced to the successful conclusion of the operation. The patient being secured in the usual manner, the staff

was introduced and firmly fixed with its point upon the stone; an incision was now commenced an inch or more above the anus, and continued to the extent of full three inches and a half; the parts were divided with much difficulty; indeed this part of the operation was necessarily tedious. From the indurated state of the perineum the staff itself could not be felt, and much care was therefore required to effect an opening safely into its groove. The knife being at length properly fixed in the groove of the staff, it was carried forward through the prostate gland; but here its further progress was arrested by the beak hitching upon the stone. The advantage of the knife over the gorget was now manifest. At this period of the operation, the gorget would have been useless, or it is probable might even have slipped between the bladder and the rectum. It became necessary to leave the groove, and finish the incision by directing the edge of the knife first slightly upward, then obliquely downward and outward. The stone could now be easily felt, and seemed to be equal in size to the globe of a large goblet; the forceps were introduced, and broke off a projecting portion of stone; by repeated efforts other pieces were detached, but still the bulk of the concretion was not materially reduced, and the application of the stone-breaker was impracticable, (although the incision was enlarged to facilitate its application) on account of the impossibility of including the stone in its grasp. At this moment I recollected having

seen it recommended in a manuscript copy of Mr. A. Cooper's Lectures, to perforate the stone; it was suggested also by one of my colleagues to fix it by a blunt midwifery hook to prevent its recession. By this means with a common small chisel the calculus was broken into fragments, and the pieces extracted. The bladder was then washed out by repeated injections of tepid water. I could now feel the bladder perfectly smooth and free from particles of stone. Faint and languid, with his pulse scarcely perceptible, his extremities cold, and his face bedewed with clammy sweat, the patient was put to bed, and forty drops of laudanum administered in a little brandy and water. The fragments of stone collected and washed, weighed eight ounces and a half; besides which the surgeons present were decidedly of opinion that two ounces and a half were lost in scrapings and grit washed out of the bladder. The shape of the calculus, as far as could be ascertained during the operation, was globular. The composition of it appears to be chiefly phosphate of lime. It would afford but little interest to relate here the detail of the after-treatment, it will be sufficient to state that the inflammatory symptoms never rose so high as to require general blood-letting; but there were some events subsequent to the operation which may deserve notice as arising immediately out of the peculiar circumstances of the case. On the 12th day afterwards a slough was perceived between the lips of the wound, which upon removal

was found to be thickly studded with gritty particles. From this period to the 31st of May, the 30th day after the extraction of the stone, sloughs of considerable size were frequently removed from the wound ; several of which were smooth on one side, and gritty upon the other. This led to the suspicion that the rectum was sphacelating, although no fœces had as yet been 'passed by the wound nor any urine with the stools. On examination by the rectum, a small orifice was discovered sufficient to admit the point of the finger. No water had been passed since the operation naturally, which induced the belief that the bladder, kept upon the stretch continually by the calculus, had lost its tone. This opinion, the subsequent condition of the patient decidedly confirmed. In the middle of June fœces in great quantity passed through the wound, which still continued to heal up slowly ; nor was it till the second week of July that this distressing symptom finally ceased. Early in August the wound had so far healed up that a small probe could scarcely be passed into it. The bladder appeared to have entirely lost its power, and the patient was obliged to wear continually a flexible gum catheter with a bag contrived to receive his urine. His health, however, in all other respects, was perfectly restored, and he was able to walk a distance of ten miles in the day. From this date to the present time he has not been under medical care. There is still the same fistulous opening remaining, notwithstanding every

endeavour used to obliterate it; which tends to confirm the opinion of Mr. C. Bell, given in the first part of his surgical observations, that whenever substance is lost, either from the urethra or perineum, the reproduction of it is a process of much difficulty, and frequently cannot be effected. The bladder is now slowly regaining its tone, being capable of retaining a few ounces of water, and I have considerable hope that my patient may ultimately be restored to the perfect functions of his urinary organs, as he is to the full enjoyment of health in every other respect.

REMARKS
ON THE
DANGER
OF
EXTRACTING LARGE CALCULI,
WITH THE
DESCRIPTION OF AN INSTRUMENT
INTENDED TO
FACILITATE THE BREAKING DOWN STONES OF
CONSIDERABLE MAGNITUDE.

By HENRY EARLE, Esq.

ASSISTANT SURGEON TO ST. BARTHOLOMEW'S, AND SURGEON TO THE
FOUNDLING HOSPITAL.

Read March 28, 1820.

IN witnessing the performance of the operation of lithotomy, I have often remarked the great disproportion which the size of the wound bore to that of the stone which has been extracted, and the extreme force that was required to bring it away. This circumstance I have observed both when the operation has been performed with the knife and the gorget, but more especially with the latter instrument. The laceration and contusion which

has been thus occasioned, has in several instances been the cause of inflammation and various symptoms that have terminated fatally, even where other circumstances were propitious to the recovery of the patient.

It must certainly be generally acknowledged an object of the first importance that the stone should be extracted without violence, and this can only be effected by the incision into the bladder being sufficiently extensive to allow of its easy removal. It is not however an uncommon occurrence to see a stone, the diameter of which, together with the forceps, shall measure above two inches, forcibly dragged through an opening made with a gorget with a cutting edge not exceeding three quarters of an inch. It is true that some patients have recovered after such operations; but it cannot be denied that the operation has been thereby rendered much more painful and hazardous, and the subsequent recovery has been greatly retarded. On the other hand experience teaches us, that it is highly dangerous to make any very considerable wound in the bladder, and that the subsequent effusion of urine into the surrounding cellular substance, and other unfortunate circumstances, have, with some very rare exceptions, generally proved fatal. Whenever, therefore, a stone is of large dimensions, it becomes a desirable object to break it in the bladder, and to extract the fragments by repeated introductions of the forceps.

The occurrence of cases of such magnitude as to require the application of mechanical contrivances to break them, is not common, yet by no means so rare as might reasonably have been expected, when we consider the progress of surgical knowledge, and the great diffusion of county hospitals and institutions for the relief of the suffering poor. In little more than one twelve-month three instances have occurred within my knowledge, which I shall proceed to relate to the Society. I have been favored with the particulars of the first case by Mr. Travers.

“ Benjamin Bensley, a short and very corpulent man, by occupation a maltster, 43 years of age, was admitted into the Norwich Hospital on the 6th of June, 1818, under the care of Mr. Dalrymple. He had suffered under symptoms of stone in the urinary bladder during the preceding ten or eleven years, previously to which time he had been in the habit of voiding large quantities of red sand. His habits of life had been temperate and regular, and general health pretty good. His symptoms at the time of his admission into the hospital were very urgent. He had a constant stillicidium urinæ, and a large quantity of muco-purulent matter was mingled with his water. He was sounded before he was admitted into the house, and the calculus was discovered to be of unusual size. The lateral operation was performed on the 11th of June; the staff was easily passed as far as the neck of the bladder,

but, owing to the resistance occasioned by the size of the stone, could not be fairly introduced. The incisions, both superficial and deep-seated, were of ample extent, and a full sized pair of forceps was admitted with very little difficulty. After some little manœuvring, rendered necessary by the repeated slipping of the forceps, the stone was seized, as it was hoped firmly, but it escaped from the grasp of the instrument when brought to the prostatic opening. This occurred repeatedly to the operator concerned and his colleagues. Forceps of different sizes were used, and amongst others a pair of unusual size and power constructed for the express purpose of crushing large calculi; but in vain. These instruments did no other good than by detaching some small portions of the more external laminae from that part of the stone which was presented to their grasp. After a lapse of about an hour from the commencement of the operation all hopes of extracting it were abandoned, the patient was carried to his bed with cold extremities and a fluttering pulse, and died at the expiration of about three hours. The body was opened on the following day. There was nothing presented by the dissection requiring to be detailed on this occasion. The parts are preserved in Mr. Dalrymple's collection, and exhibit a bladder much injured by the long continued and forcible application of instruments. The ureters and pelves of the kidneys were greatly enlarged. The calculus is very large, having numerous sparkling crystals co-

vering the greater portion of its upper and anterior surface. It weighs at present twelve ounces five drachms, and it is calculated that the fragments detached at its inferior extremity in the repeated attempts made to break it down, might weigh about five drachms more. No section has yet been made of it, nor have its chemical properties been examined." Vide plate I. fig. 2. •

The second case occurred to Mr. Astley Cooper, who obliged me with the following particulars of the operation.

"The patient was 43 years of age, and had suffered from stone the greater part of his life; he had been sounded, but refused to submit to the operation when the stone was first discovered. The operation was conducted in the usual manner in making the incision, introducing the gorget and the forceps. When the forceps were applied to the stone, it was found to be of immense magnitude, and the instruments only embraced its extremity; from which they repeatedly slipped. I pressed upon the stone with a large pair of forceps in the hope of breaking it, but it was too hard to yield to the pressure of the instrument. I sent for a gimblet, and whilst I held the stone with the forceps, endeavoured to penetrate and break it, but could make but little impression on it. I therefore enlarged the wound to the sacro-sciatic ligament, extending the incision as much behind the rectum (but between it

and the tuberosity) as it is usual to do before it. I then passed the crotchet on the fore part of the stone behind the pubes, and directed my apprentice, Mr. Babington, to thrust the stone downwards towards the sacrum as much as he could, whilst I introduced the forceps, and with them extracted the stone. The patient survived the operation only four hours. Mr. Field, surgeon of Wilderness Row, who was a relation of the deceased, was present at the operation, and was so kind as to give me the calculus." Its weight was $\frac{3}{4}$ vi. The diameter in the long axis was four inches and a half; in the short axis three inches and a quarter. Vide Plate II., fig. 1 and 2.

The third case occurred very recently at the Manchester Infirmary, and I regret that I have not been able to obtain any detailed account of the case. Dr. Henry has obligingly sent me the following report.

"The operation was performed with success so far as respected the extraction of the stone, which was too large to have passed through any opening that could have been made, and was therefore forcibly fractured. The part of it which I saw, consists of ammoniaco-magnesian phosphate, of much greater than usual hardness and density, and resembling fluor spar in these properties as well as its fracture. In consequence of this unusual hardness, the breaking it down was a work of great la-

bour and difficulty. The patient died in about twenty-four hours after the operation.”

In addition to these more recent instances, very many cases of large calculi may be found in the records of surgery, which were forcibly extracted, and the patients either died under the operations or in a short time after. It may not be uninteresting to subjoin a few of the more remarkable instances, and in reading them it will be right to bear in mind that the weight can by no means be considered as a fair criterion of the bulk, as that must of course depend much on the composition of each individual calculus.

Hildanus* records a case operated on by Vitellius, in which the stone weighed 3xxij. and the patient died under the operation.

Dr. Charles Preston† mentions having seen at La Charité in Paris, a stone which weighed 3li. said to have been taken from one of the religious brothers in June, 1690, who died before the operation was concluded.

Borellus‡ relates a case of a stone of 3xviij.

* De lithotomiâ vesicæ liber, cap. 8. p. 720, et cent. 4. Obser.

51.

† Philosophical Transactions, Vol. XIX. page 310.

‡ Histor. et Observ. Med. Phys. Centur. 2 Observ. 22. 12mo. Leip. 1676.

weight, which was extracted by a skilful surgeon named Quesnotus, but the patient did not survive.

The late Mr. Birch extracted one of $\xi xvj.$ weight, at St. Thomas's Hospital, with a similar result.

Deguisse * removed one of $\xi xxxi.$ from a patient aged 65, by the high operation, having previously operated through the perineum. The patient died on the sixth day.

Martean de Grandvilliers† extracted one of $\xi xiv.$ and another of $\xi xij.$, both with fatal results.

Vidal‡, Eller§, Palucci||, and La Motte¶, all mention cases of $\xi xij.$ weight, which were extracted by operations, but in no one instance did the patient recover.

Mr. W. Wadd obliged me with the loan of a

* Recueil périodique, &c. Tom. vii. p. 423, et Tom. xiv. p. 424.

† Journal de Médecine, Tom. xii. p. 54.

‡ Traité sur la production des pierres dans le corps humain, p. 262.

§ Histoire de l'Académie de Berlin, 1757, p. 30.

|| Nouvelles remarques sur la Lithotomie, p. 72.

¶ Chirurg. Observations, p. 320.

very remarkable calculus, to exhibit to the Society, which was extracted by the celebrated Cheselden ; the patient died the following morning. The present weight of the stone is xxviiijss. its circumference in the long axis is eleven inches and a quarter, in the short axis ten inches. Mr. Wadd is not certain whether it was removed by the high or lateral operation. In looking to the various publications of Cheselden, I can find no record of this calculus ; it was taken from a private patient, which is the probable cause of his having neglected to mention it, as he expressly states that he “ kept no account of his private cases, as they were not sufficiently witnessed.” Of the prodigious number of cases on which he operated, the three largest stones successfully extracted weighed twelve, ten, and eight ounces.

Without citing any more authors, it will be sufficient to state, that as far as my researches into this subject have hitherto led me, very few instances of success are recorded, where the stone exceeded seven or eight ounces*.

* The following are the largest successful cases which I have met with :—One xxv. weight, and $4\frac{1}{2}$ by $3\frac{1}{2}$ inches diameter, extracted by Mr. Harmer of Norwich, related in Gooch’s *Surgical Observations*, p. 54. The patient survived ; but the wound never healed. One of xxij. gr. xxx. weight, $3\frac{1}{2}$ inches diameter, and 8 inches circumference, operated on by Klein, with perfect success. *Pract. Ansich. der bedeuten : Chir. Oper.* p. 32. Pl. 1. No. 9. Klein likewise refers to a case related in Mursinna’s *Journal für die Chirurgie*, IV. p. 94. in which a stone of xxij. 3ij.

On taking an impartial review of all the instances adduced in this paper, it will not, I trust, be assuming too much to say, that it would be a decided improvement in the operation, to endeavour to crush all large calculi by some mechanical contrivance, rather than trust to the uncertainty of their yielding to the pressure of common forceps, or to use any injurious force in the attempts to bring them away.

This practice has not, I conceive, been hitherto adopted, from the want of an instrument capable of embracing a large stone, and which could effect the fracture of it without incurring the risk of injuring the parts in which it is contained.

In the writings of many ancient authors, the propriety of breaking stones is inculcated. Celsus* informs us, that Ammonius of the Alexandrian school was the first who adopted the practice of cutting or dividing stones in the human bladder; for which art he acquired the surname of Lithotomist, which has ever since been erroneously adopt-

weight, was successfully removed. Ambrose Paré mentions the case of a confectioner operated on in 1570 by John Collo, where the stone weighed 3ix. and was $3\frac{1}{2}$ inches in diameter. Lib. 25. ch. 19. Tolet mentions a case of 3x. weight and $3\frac{1}{4}$ inches diameter, which was happily extracted, and the patient was recovering from the effects of the operation, when an abscess formed in the kidney from the presence of another calculus; the patient died on the ninth day from that of the operation.

* De Medicina, Lib. 7. cap. 26. art. 3.

ed by those who operate for the stone. His mode of operating consisted in fixing the stone with a hook, and after enclosing it in the grasp of a pair of forceps of moderate thickness, the edges of the blades being thin but not sharp, it was divided by the forcible percussion of the two blades. The successors of Ammonius followed his plan with little or no variation until the time of Ambrose Paré*, who increased the strength of the forceps, and added powerful teeth to the blades, and a thumb-screw through the handles, to assist in crushing the stones.

Le Cat † paid considerable attention to this subject, and has given a long description of two instruments he constructed for breaking calculi. The first of these may be considered as an improvement on Paré's; it consisted in a pair of very powerful forceps with strong wedge-shaped teeth, with a vice and lever passing through the handles, the action of which in closing the blades, would be more gradual and far more powerful than that of the operator's hands. He calculated the combined force of these three mechanical powers to be equal to 370,400 pounds, and of course more than equal to crush any calculus ever found in the human bladder.

* Lib. 17. cap. 42.

† Parallele de la Taille laterale, p. 262.

Frère Côme * recommended a somewhat similar contrivance, and these are the instruments which, with some slight variations in size and form, have been employed, or rather attempted to be employed, to the present day.

In addition to the violence which such instruments must inflict on the bladder and surrounding parts, they are highly objectionable on account of the great difficulty, nay almost impossibility, of introducing and expanding them sufficiently to grasp a stone of any magnitude. Whenever the calculus is of considerable size, and the bladder contracted round it, so as to make it present itself immediately at the prostatic opening, it is obvious that the blades must be opened in the tract of the wound, and even should the stone recede by pressure, so as to enable the blades to be passed into that viscus, they cannot be expanded, if constructed on the common principles of stone-forceps, without the handles being expanded in the wound to an equal if not greater size than the stone itself.

Franco † was aware of this objection, and endeavoured to obviate it by giving a peculiar turn to his forceps, which admitted of some expansion

* Perret, *Art de coutelier*, Part 2, pp. 429 & 432. pl. 142. fig. 12. pl. 145. fig. 1.

† *Traité des Hernies*, p. 135. 8vo. Lyons.

of the blades, without any increase in that part of the handles which occupied the track of the wound. This idea has been lately revived by Professor Assalini *, whose stone forceps in this respect bears a very close resemblance to that of Franco. The second instrument, invented by Le Cat †, was intended for cases where the bulk of the calculus was very great, and could not be included in any forceps. In such cases he recommended that the stone should be fixed by an assistant pressing above the pubes, and another by the rectum ; a hole was then to be drilled with a perforator, made to act through a canula, to defend the bladder and soft parts. Larger perforators were subsequently to be used until the aperture was of sufficient size to admit an instrument resembling the perforator used in midwifery, only narrower. When passed into the centre of the calculus, the sharpened edges of the blades were to be forcibly separated by a vice and lever passed through the handles. This idea is ingenious, and it is probable that some modification of it might be applicable to cases where the whole cavity of the bladder was filled with calculous matter, and where no instrument could be passed round it. In such cases, however, as have been detailed in the early part of this paper, we have yet to regret the want of some efficient contrivance

* Transactions of the Society of Arts, &c. Vol. 33. pl. 7. fig. 8.

† Loc. cit. p. 278.

to facilitate their fracture without injuring the contiguous parts.

It is with a view to supply this desideratum in surgery that I now have the honor of addressing the Society, and submitting to their notice an instrument apparently calculated to fulfil the different indications. The necessity for such a contrivance first suggested itself to me after witnessing an operation performed by one of the most enlightened and experienced men in the profession, where the magnitude of the stone was so great, and the means of breaking it so wholly inefficient, that the operator was under the painful necessity of leaving his task unfinished. A further detail of this melancholy case is already before the Public in the Philosophical Transactions for 1810. The calculus which weighed 3xliv., and was sixteen inches in circumference, is preserved in the Hunterian Museum*. The instrument which I then construct-

* This, I believe, is the largest stone preserved in London; but many of nearly equal, and even greater dimensions, which were removed after death, may be found in different works. I subjoin some few instances. Kesselring states, that he saw at M. Morand's a stone that weighed six pounds, three ounces. Tolet gives three instances, weighing 50, 32, and 28 ounces. *Traité de la lithol.* c. 6, p. 36. Dr. Lister, in his journey to Paris, met with one of 51 ounces weight, and another of 34. Verduc gives an instance of 3 pounds 3 ounces weight. Mr. Goodrick states in the *Phil. Trans.* that he found one as large as the head of a new-born child, in the bladder of a boy at Bury St. Edmund's. The same gentleman removed 96 calculi from one patient. A stone 35 ounces weight was taken from the body of one Francis Dugood of Aberdeen. Tozzetti, in

ed was described by Mr. S. Cooper, in the first edition of his valuable compendium of surgery. I soon after improved upon it by substituting two blades, which were intended to be introduced separately, and united in the same way as midwifery forceps. Lately my attention has been again awakened to the subject, and the necessity for some improvement in this department of operative surgery has been forcibly impressed on my mind by the occurrence of the cases which I have had the honor of reading to the Society. On reconsidering the subject, I found my former instruments objectionable and imperfect, and determined to attempt to remedy their defects. Not without some trouble, I have obtained the one which I now present to your notice, after premising that I by no means consider it a perfect instrument, but rather an attempt on which better mechanics may hereafter improve*. The principle of its construction I believe to be correct, and calculated to effect the twofold purpose of passing through a deep and narrow wound, and expanding round bodies of large and irregular dimensions. It would certainly have been much more satisfactory could I have subjoined any

his *Raccolta di Osserv. Med.* relates two instances of 28 and 39 ounces weight. Salmuth speaks of one "*totam vesicam explens.*" Mekel in his *Epist. ad Hallerum*, and Pallas in *Disput. Chirurg.* mention similar occurrences. Dr. Greenfield, in his work, *De Lithologiâ*, relates three instances of 18, 19, and 25 ounces weight.

* See description of instrument, page 92, plate III.

instance in which this instrument had been successfully employed on the living subject, but I am unwilling any longer to withhold it from the Public, that it may be the sooner submitted to the test of experiment, and either its utility confirmed, or its faults detected, and I would invite my professional brethren in the words of the poet,

“ Si quid novisti rectius istis
Candidus imperti, si non his utere mecum.”

Should this, or any other contrivance be found to be easy in its application, and effective in its operation, and should all the difficulties attending the use of such instruments be successfully surmounted, it may still perhaps be objected, that it is an evil to have the stone in fragments, because the introduction of the forceps or scoop would be thereby rendered necessary more than once, perhaps many times, and because it must always, in such cases, be uncertain whether the whole calculus had been removed. But surely it is a much greater evil to incur the risk of life, or of irreparable injury by extensive laceration of the bladder and urethra. In this operation, as in most others in surgery, the maxim, “ *sat cito si sat bene*,” cannot be too frequently inculcated. Let it be remembered that it is not the duration of the operation that endangers the safety of the patient, if his strength be not exhausted, nor the number of times instruments are introduced, provided they be cautiously and judiciously employed, but the quantum of injury done

to the bladder and surrounding parts. Admitting, however, that the repeated passage of instruments is an evil, how frequently, nay almost constantly, does it happen that in cases where the stone is extracted whole, the operator is repeatedly foiled by its escaping from his grasp, and should he at last succeed, extensive laceration is often superadded to the necessary duration and tediousness of the operation. With respect to the second objection, of not being able to remove all the fragments, I should much doubt its validity, as in all probability should any portions remain, or should the patient be too much exhausted to allow of their being removed at the time of the operation, they would readily make their way out at the wound in the course of a few days. Should any doubts, however, still exist of the propriety of breaking large calculi, the two interesting cases related to the Society by Mr. Mayo* and Mr. Dickinson will go far to remove them, as it cannot be questioned that the fortunate termination of these cases depended, in great measure, on the circumstance of the stone having yielded to the great force which was employed in the attempts at extraction, in the one case; and the rude, but judicious measures adopted for breaking the stone, at the moment of necessity, in the other.

It may, possibly, be urged that a surgeon cannot,

* See pages 54 and 61 of this volume.

at all times, be aware of the extent of the stone which he is about to extract, and therefore cannot be prepared with proper instruments for attempting to fracture it. This occurrence is certainly not very likely to happen, as the duration of the disease and the suffering of the patient, together with the sensation conveyed by the sound, and an examination from the rectum, must, in most instances, sufficiently apprize the surgeon of the nature of the case, when it would become his duty either to provide himself with efficient instruments, or not to attempt the operation. Occasionally, however, calculi do acquire considerable magnitude without causing any severe paroxysms of pain, and consequently without being suspected. Probably this arises from their being smoother on their surfaces, and being less liable to be moved in the bladder.

Henricus ab Heer* mentions a case where the stone acquired the size of a goose's egg, without producing any symptom.

Deschamps† speaks of a watch-maker, who had never experienced any symptom of stone, except that he could not retain his water for any length of time; when one day in lifting a heavy clock he felt a severe pain in the hypogastrium, from which he continued to suffer until he was brought into La

* *Observationes medicæ rariores*, 1685. *Observ.* 26.

† *Traité de la taille*, tom. 1. p. 166.

Charité, where a stone of 24 ounces weight was taken from him by Frere Côme by the high operation, and he died the following day. In such cases it is possible that a surgeon might find himself unexpectedly embarked in an operation for which he was not prepared, or however well he might have prepared himself, with various contrivances, the stone might be of such size and shape as to afford no reasonable prospect of success from the means with which he had provided himself. Under such circumstances it becomes a most important question how he should proceed, and I feel no hesitation in replying, that the safety of his patient should be paramount to every other consideration, and that he should immediately desist from all forcible attempts, which in all probability would be attended with fatal consequences. Thus at once to relinquish all attempts at removal of the calculus, which is the apparent end and object of the operation, would require considerable firmness of mind, as to some persons it might appear like a defeat by which their reputation might be endangered.

By thus desisting in time from any injurious and futile attempts, the surgeon would escape the odium of having accelerated his patient's fate, and at the same time he might acquire much valuable information relative to the size and shape of the stone, which might assist him in constructing instruments capable of fracturing it at some future period.

The simple incision in the perineum and neck of the bladder would be rather beneficial than otherwise, by allowing the free exit of the urine as it was secreted, by which the patient's sufferings would be much alleviated. The inflammation which would take place around the wound would probably be productive of good against any future attempt, by causing adhesions in the surrounding cellular texture which would render urinary infiltration much less to be dreaded. In any subsequent attempts the wound might either be dilated with sponge tents, which would render the operation bloodless, or the fistulous opening might be enlarged with the bistouri.

Many respectable advocates may be adduced in favour of thus performing the operation at two different periods.

Franco* and Fabricius† Hilvanus particularly recommended this practice. Hunczowsky‡ says, "if the stone does not present itself at the wound, it is better to defer the extraction." Frere Côme§, Hugo Maret, and Jean Zecchi entertained the same opinion.

* *Traité tres ample des hernies de la frene, &c.* p. 128, u. 134. Lyon, 1561.

† *De Lithotomiâ vesicæ liber*, cap. 16, p. 731.

‡ *Medizinisch chirurgische beobachtungen*, p. 295.

§ *Richter, Chirurg. Biblioth. t. 1. p. 116. t. 8. p. 46. t. 11. p. 507. t. 1. p. 15.*

Instances have also occurred in which from accidental circumstances the removal of the calculus has been delayed, and the cases have terminated favorably.

Dr. Charles Preston * informs us that a M. Parfaima operated at Ghent, in 1696, and found a stone adhering to the bladder, which, after eight days, he extracted with ease, and the patient recovered.

My father † relates the case of a child, aged five, who was operated on, but no stone could be found at the time ; after some days, however, it presented itself at the wound covered with spiculæ, which rendered its extraction difficult. Two similar cases are recorded in *L'Histoire de la Société Royale de Médecine* ‡, in both of which the extraction of the stones was delayed, but after a few days they found their way to the external aperture of the wound.

Tolet § relates a very interesting case of this description. In 1659, he operated on a gentleman, but, in consequence of the size of the stone, was unable, without endangering his patient's life, to remove it. The inflammation, consequent to the first operation, was abated by the 9th day, and the

* Philosophical Transactions, Vol. 19. p. 310.

† Practical Observations on the Stone, p. 68.

‡ Tom. 2. p. 248. et sequent.

§ *Traité de la Lithotomie*, p. 253. 5th edit. Paris, 1708.

stone was extracted on the 11th without difficulty; during all this time the wound was kept dilated with tents. The stone, he says, was "grosse comme une balle de longue paulme, revêtuë partout d'autres petites pierres figurées comme des poids mediocres."

Covillard * records a most important case, in which he entirely attributes the patient's recovery to this practice.

Collot † gives an account of a patient, aged 75, who was operated on, "en deux tems," with an interval of eighteen days, with the happiest result, and adds, that he is confident, if he had persevered in the first operation, the patient would have sunk under it. He relates several other equally successful cases.

Saviard ‡ speaks equally favorably of this practice under particular circumstances; and gives an account of some important cases in which he followed it.

Although in common cases this temporising may be very justly condemned, and I am well aware that it might be abused, yet in such instances as I have supposed above, where it must, at once, be

* Observat. Medico-Chirurg. Obs. 4.

† Traité sur la Lithot. p. 178.

‡ Observ. Chirurg. Obs. 108, 206, et 443.

apparent to the surgeon that he possesses no efficient means to complete his operation, and in cases of great exhaustion from hæmorrhage, long suffering, old age, or the duration of the operation, I should consider such practice as far more justifiable than to endanger the life of the patient, by long continued and improper application of force, or by making so extensive an incision into the bladder, either through the perineum or above the pubes, as would hardly afford a shadow of hope of ultimate success.

DESCRIPTION
OF
MR. EARLE'S
INSTRUMENT FOR BREAKING CALCULI
IN THE BLADDER.

THE instrument consists in three blades, united by two pivots at their upper extremities, and attached to three cylinders below, which move one within the other. The outer blade and cylinder are fixed below to a hollow steel handle ; the two inner cylinders and blades are made to revolve to the extent of one-third of a circle, one to the right, and the other to the left, by means of two rings with uprights, which move round the lower extremity of the outer cylinder, and are fastened with a pin when the blades are expanded. The cylinders are four inches in length. The outer blade is broader than the other two to admit of their closing under it. The length of it is likewise greater, and this projection nearly answers the purpose of a fourth blade. The blades are connected with the cylinders by means of a nut and two screws, which can easily be removed to allow of other sets of blades

of different sizes and forms, adapted to calculi of various dimensions, to be readily attached. The other parts of the instrument consist in a wedge-shaped perforator and screw made to pass up through the hollow handle and inner cylinder. The perforator does not turn round, being kept steady by two pins which work in its groove. The screw turns upon the lower extremity of the perforator, to which it is connected by a socket which works round a shoulder. The lower extremity of the steel handle is tapped for the male screw to work in. The steel handle is octangular, and a small moveable key, similar to that used for unscrewing pocket pistols, is adapted to it, to enable the operator to have a more steady hold of the instrument. When it is to be used, the screw, perforator, and key should be withdrawn; and the operator, having previously endeavoured to ascertain the size and form of the stone, should attach that set of blades which appears to him best adapted to the case. The inner blades should then be closed together under the broader outer one; the whole will thus occupy very little more space than one blade. The form of the whole instrument, in this position, bears some analogy to a catheter, and it should be passed in the same direction, upon the fore-finger of the left-hand, under the calculus. The inner blades should then be expanded by moving the rings and uprights.* When the blades are equidistant, the two uprights will exactly oppose each other, and the steel pin should be passed through

the openings left in them, which will prevent the blades from moving. The operator should now carefully examine, with his fore-finger, to ascertain whether the calculus be properly secured within the blades; the small space occupied in the tract of the wound readily admitting of this examination. The next stage in the operation consists in fitting on the key, and introducing the perforator and screw, which is to be gradually turned round until it meets and crushes the calculus. The screw and perforator should then be withdrawn, the uprights unpinned, the blades closed, and the instrument removed from the bladder, with the same precaution and in the same direction that it was introduced. The fragments of the stone are then to be removed by common forceps, and should any portion of it be still too large for extraction, the instrument with smaller blades must be again introduced to effect a further division of it*.

* When I had the honor of laying the above written paper and instrument before the Society, Dr. Granville stated that a very similar contrivance had been invented by Levret, for the purpose of removing a detached foetal head from the uterus. On referring to that author I find that in some respects the principle of the instrument alluded to by Dr. Granville, bears a very close resemblance to mine, although its object and application are different. Like mine it consists of three blades which close one within the other, and which are worked by three cylinders precisely in the same manner, except that the rings which move the blades are situated immediately at the junction of the blades with the cylinder. The form and length of the blades are likewise dif-

ferent from mine ; and there is no screw and perforator passing through the handle and inner cylinder. I feel much indebted to Dr. Granville for having pointed out this resemblance, and only regret that I was not earlier acquainted with Levret's contrivance, a knowledge of which would have saved me much trouble and expense. Vide Levret, *Observations sur les causes et les accidens de plusieurs accouchemens laborieux*. 8vo. Paris, 1750.

REFERENCE TO PLATE III.

- Fig. 1.* Represents the instrument with the blades closed and the perforator introduced.
- a.* The outer blade longer and broader than the others.
 - b.b.* The two inner blades.
 - c.* The perforator grooved on one side.
 - d.* The nut for fixing on the blades, screwed to the top of the inner cylinder.
 - e.* The outer cylinder, fixed above the outer blade, and below to the handle *h*.
 - f.f.* Rings with uprights, for moving the inner cylinders and blades.
 - g.* Pin to fix the uprights when the blades are expanded.
 - h.* The octangular handle.
 - i.* Key adapted to the handle.
 - k.* The wooden handle to turn the screw *l*.

96 DESCRIPTION OF MR. EARLE'S INSTRUMENT, &c.

Fig. 2. Represents the same instrument in action.

The blades expanded, the pin fixed through the uprights, and the perforator half introduced.

Fig. 3. The perforator and screw detached.

a. The groove.

b. The joint uniting it to the screw.

c. The screw.

d. The wooden handle.

Fig. 4. The steel key.

CASE
OF
CAROTID ANEURISM,
SUCCESSFULLY TREATED.
BY GILES LYFORD, Esq.

COMMUNICATED IN A LETTER TO
ASTLEY COOPER, Esq. .

Read Dec. 7, 1819.

MY DEAR SIR,

I HAVE much pleasure in communicating to you the successful termination of a case of carotid aneurism, in which scarcely any unpleasant symptoms occurred during the progress of the cure.

Richard Kinchen, about 36 years of age, was admitted into the Winchester Hospital the 25th of October, 1818, with a tumor about the size of a hen's egg, extending from under the angle of the jaw of the left side, below the thyroid cartilage, possessing every characteristic of carotid aneurism. The account he gave of himself was, that he obtained his livelihood by bringing fish from the shore to the market, & that he had been in the habit of carrying

large baskets of oysters on the shoulder of the same side on which the tumor was situated ; that about three weeks previous to his admission to the hospital, he had, for the first time, discovered a swelling in the neck, which he attributed to cold, from its being accompanied with cough and head-ache. On the evening of his admission, he was seized with so violent a palpitation in the tumor and throbbing in the head, that it was thought necessary to take away from twelve to fourteen ounces of blood, which relieved him. The next day he took a dose of salts, and was directed to live low ; an evaporating lotion was kept constantly to the part. He experienced so much relief from these means as to make him hesitate whether he should submit to the operation. On the 30th, the operation was performed in the usual way, in the presence of several medical gentlemen of the neighbourhood. A single ligature only was applied, and that with facility. Immediately after the ligature was tied, the palpitation subsided, and the patient expressed himself by saying that something had fallen from the head into the part, and that his head was now quite comfortable. The edges of the wound were brought together by means of a single suture, and strips of adhesive plaster placed at such distances as to allow of a free discharge ; not a single unpleasant symptom occurred during the whole progress of the cure, with the exception of a troublesome cough, which yielded to the occasional use of opiates, and the potassæ nitras, and

syrupus papaveris. The tumor gradually subsided, and on the 26th of November, which was near a month from the operation, the ligature came away with the dressings without any degree of force being used.

On the 21st of January, 1819, a slight hemorrhage took place from the sore, which immediately subsided on the application of cold; from this time nothing further occurred, and scarcely any traces of the tumor could be discovered; a very small sinus however remained at the part at which the ligature separated, which baffled all our efforts, he was therefore, on the 17th of February, made an out-patient. About six weeks afterwards I had an opportunity of seeing him, the sinus had healed, and he was in every respect in perfect health. If you think this case worthy the attention of the public, you will have the goodness to make such use of it as you think proper.

Believe me, my dear Sir,
very faithfully Yours,

GILES LYFORD.

Winchester,
Aug. 13, 1819.

CASE
OF
POPLITEAL ANEURISM,
IN WHICH
THE TEMPORARY LIGATURE WAS EMPLOYED.

By WILLIAM ROBERTS, Esq.

MEMBER OF THE ROYAL COLLEGE OF SURGEONS, AND
SURGEON IN CARNARVON.

COMMUNICATED BY
MR. ASTLEY COOPER.

Read Feb. 29, 1820.

SOMETIME ago I performed the operation for popliteal aneurism, using two ligatures, and dividing the artery in the space between them. Considerable irritation of the system, and sloughing of the part ensued, and although my patient ultimately recovered, he was confined near four months. This case greatly discouraged me, and when I read the experiments and suggestions of Mr. Travers, in the Fourth and Sixth Volumes of the Medico-Chirurgical Transactions, I was determined to put those suggestions to the test of ex-

perience on the first opportunity that might offer ; accordingly I adopted the temporary ligature in the following case, of which I shall give you the general result.

At 12 o'clock, June 6th, 1818, in the presence of Mr. Evans and Mr. Carrey, respectable surgeons of this town, I performed the operation for popliteal aneurism on L. Lewis, aged 32, a seafaring man. The ligature was applied at the usual place, and the wound dressed with simple ointment.

On the 7th, at twelve o'clock, that is, in twenty-four hours from the operation, the before-mentioned gentlemen being again present, the ligature was removed without any difficulty, and the edges of the wound were brought together with adhesive plaster. No pulsation was felt in the tumor. It is proper here to observe, that a small piece of thread was interposed between the ligature and the artery, as was done in the experiments by Dr. G. Jones ; and that the thread so used greatly facilitated the removal of the ligature.

June 8th, 3rd day. There was still no pulsation in the tumor ; he had slept all night ; was quite cheerful ; and expressed a wish to get out of bed. On the morning of the 12th, indeed, I found him, to my surprize, sitting at the window. In

eleven days the wound was quite healed. I met him six months from this time, and he told me, that he never enjoyed better health ; that he could go to the mast-head with as great facility as at any period of his life.

In the Ninth Volume of the Medico-Chirurgical Transactions, two cases are published by Mr. Travers, in which the temporary ligature was employed ; and from the result of one of those, it appears that he is now adverse to that mode of practice. He adds his inferences, which it is unnecessary to transcribe at length.

1st. " That the removal of a ligature upon the femoral artery of the human subject, in twenty-seven hours is followed by a return of the circulation in the vessel."

2d. " That a ligature applied for twenty-seven hours upon the human femoral artery, has scarcely afforded a perceptible impediment to the blood."

3d. " That suppuration is as certain to take place, when the ligature is removed, after a few hours, as if it were left to be cast off."

Every deference is due to the authority of Mr. Travers ; however, in the present instance, I can-

not but question the general truth of his deductions, for in the case here related, the artery was rendered completely impervious, though the ligature was allowed to remain only twenty-four hours, and no suppuration ensued.

Carnarvon,
December 1, 1819.

ON
AN ACUTE FORM OF ULCERATION
OF THE
CARTILAGES OF JOINTS.

By HERBERT MAYO, Esq.

Read April 11, 1820.

THE luminous illustration which the pathology of joints has received from Mr. Brodie, would infer some presumption in the attempt to prosecute this subject further. There are, perhaps, no organs, of the diseases of which an equally original and inclusive view has been taken; yet it is not impossible that even among these cases, certain varieties may have escaped unnoticed; which it may be useful to trace. The following observations, which I was led to make, when verifying Mr. Brodie's statement, may perhaps have this merit.

A female, 27 years of age, six months after parturition, was seized with pain and swelling of the wrist. The next day, the right knee had participated in this affection. The succeeding day, both these affections had subsided; but similar changes

had commenced in the left knee, which continued acutely painful and permanently swollen, the whole limb indeed being enlarged; the knee was frequently leeches and continually fomented, without any relief being obtained. Six weeks after the attack, I had an opportunity of observing this case; at that time, by the patient's account, no material change had taken place in the limb; the thigh and leg were swollen with serum effused in the cellular membrane; the joint itself contained no fluid; the pain in the knee was very acute and constant, and increased by the least movement; the patient lay on her back, with the knee straightened. The application of leeches to the part gave her now no more relief than formerly; cold applications and fomentations were equally inefficient; repeated blistering appeared, at one time, to be of service; afterwards, this measure seemed to have lost its power; small doses of calomel and opium were administered frequently, during a few successive days, with no result. At length the pain seemed to abate spontaneously, the swollen state of the limb gradually subsided, the patient recovered the appearance of health, but the joint was wholly immoveable.

A female, 17 years of age, was seized with pain and swelling of the thumb, which she conceived that she had sprained. The following day, the pain had shifted to her elbow, where it rested, being exceedingly severe, and constantly throbbing. The

arm was swollen above and below the elbow, and the skin slightly reddened and healed ; leeches were applied to the arm without any benefit, and, subsequently, a blister, in the vicinity of the joint, which was kept open with the same cerate. Under this treatment, the pain in the elbow was somewhat relieved, when it suddenly reappeared with increased violence, the arm becoming more swollen, and the skin covered with a bright blush of inflammation. Leeches were repeatedly applied without any relief. An erysipelatous inflammation now extended itself up the arm, occupying successively her neck and chest ; her stomach became remarkably irritable, so that for several days she vomited whatever she swallowed ; she was thus reduced to the lowest degree of exhaustion. A fluctuation could now be felt on the outside of the sore arm, near the elbow-joint. On puncturing this part, a small quantity of pus escaped ; the wound was not long in closing. The patient regained her strength ; her arm gradually returned to its former size, but the elbow-joint was completely ankylosed, admitting of no movement.

In both these cases, the period between the commencement of the attack and the completion of the ankylosis, somewhat exceeded two months. The febrile symptoms attending the commencement of the latter were slight. I had no opportunity of ascertaining this circumstance in relation to the former.

These cases I felt inclined to consider as inflammatory affections of the joints, looking to the acute form of the attack ; but they were not accompanied with that effusion into the synovial cavity, which Mr. Brodie describes as characteristic of inflammation of the synovial membrane ; still less did the symptoms seem to indicate the process of ulceration of cartilage. " The ulceration of the cartilages of the knee," says Mr. Brodie, " differs with respect to its symptoms from inflammation of the synovial membrane in this, that the pain in the former is slight in the beginning, which is the very reverse of what happens in the latter*." A statement completely borne out by the cases of these affections, which Mr. Brodie relates, many similar to which I have myself witnessed, when verifying his observations at the bed-side of patients.

Soon after the cases, which I have described, occurred, I had an opportunity of making the following dissection.

A boy, 14 years of age, died of an affection of the brain, connected with fracture of the skull. He survived this injury about three weeks. Four days after the accident, a joint of one finger and one ankle-joint appeared swollen and painful. The swelling extending some distance above and below the affected joints. There was no discoloration

* Brodie on the Diseases of Joints, p. 155.

of the surface, which might lead to the supposition that these parts had been bruised. The swellings suppurated, and were opened previously to the boy's death.

I ascertained, by careful dissection, that the abscesses, which had been extensive, did not communicate with the joints in their vicinity, the capsules of which contained no excess of fluid. On opening the articulation of the affected finger, the extremities of the bones were found wholly bared of cartilage; in other respects quite healthy. On exposing the cavity of the ankle-joint, the surfaces of the astragalus and tibia and fibula were found almost wholly stripped of their cartilage; what remained of this texture was thinned, and that unequally; but seemed in other respects unchanged, and adhered firmly to the bone. The same alteration was found in the remaining joints, which the astragalus concurs in forming; the exposed bone on each surface was perfectly healthy. The annexed drawing represents the superior surface of the astragalus, obtained from this dissection.

Is there sufficient correspondence between this latter case and the two former, to warrant the inference, that a similar rapid absorption of cartilage took place in the three; and that, if the subject of the third observation had lived, the affections of his joints would have terminated in ankylosis, as happened in the two former cases?

At any rate, it is useful to call the attention of the Society to an affection, important in its consequences, rapid in the progress of its symptoms, and liable to divert from the active treatment, which it probably requires at an early period, inasmuch as it simulates a more harmless affection, acute rheumatism.

With respect to the treatment of this affection, I can offer nothing but conjecture.

The peculiar appearance of ulcerating cartilage, which I have described, differing from that which more frequently occurs, has not escaped the researches of Mr. Brodie. Two cases* are mentioned in his work, corresponding with the third, which I have detailed, in as far as regards the absorption of cartilage. It is to be observed that I employ this case, in the present instance, merely as illustrative of what may take place in the hitherto undescribed disease, of which I have brought two instances.

* Brodie, cited work, p. 136.

ACCOUNT
OF THE
EPIDEMIC SPASMODIC CHOLERA,
WHICH HAS
LATELY PREVAILED IN INDIA,
AND
OTHER ADJACENT COUNTRIES AND ISLANDS, AND AT SEA.
COMMUNICATED IN A LETTER FROM
FREDERICK CORBYN, Esq.
ASSISTANT SURGEON ON THE BENGAL ESTABLISHMENT, AND
MEMBER OF THE COLLEGE OF SURGEONS OF LONDON.
WITH
COMMUNICATIONS ON THE SAME SUBJECT,
BY FAVOR OF THE
CHAIRMAN AND DEPUTY CHAIRMAN
OF THE
EAST INDIA COMPANY;
AND
FROM THE ISLANDS OF THE MAURITIUS AND CEYLON,
BY FAVOR OF THE MEDICAL BOARD OF THE ARMY;
WITH REMARKS.
BY SIR GILBERT BLANE, BART. F.R.S.
PHYSICIAN TO THE KING.

Read May 9, 1820.

MY DEAR SIR,

Sauger, September 7, 1819.

I RECEIVED your communication through the Governor-General, containing enquiries regarding the epidemic which has desolated India for the last two years. In November 1817, I drew up a description, with an account of a treatment which I had adopted, and found remarkably successful. This was contained in a single sheet, and printed

copies of it were distributed by public authority to all the different stations. In August, 1818, I put it into the form of a small tract, which was also printed in this country. But as a considerable time has since elapsed, I shall, in order to satisfy your enquiries, relate the further progress of it since that time, with a detail of the practice as confirmed and improved by further observation and experience.

This singular and calamitous epidemic commenced in August, 1817, at Jessore, about a hundred miles to the N. E. of Calcutta, and spreading from village to village, destroying thousands of the inhabitants, it reached Calcutta early in September. It extended from thence into Behar, depopulating many large cities, till the inhabitants fled to other spots. Benares, Allahabad, Goruckpore, Lucknow, Cawnpore, Delhi, Agra, Muttra, Meerat, and Barcilly, have all suffered in succession; and it is curious and important to remark, that it did not appear in these districts at the same time, but leaving one it soon shewed itself in another.

At length it appeared in the grand army, first at Mundellah, then in the Jubbulpore and Sauger districts. From thence it spread to Nagpore, and continued its course over the Deccan in a violent degree. At Hussingabad its ravages were terrible for several days; and taking its course all along the banks of the Nerbuddah it reached Tannah.

Visiting the famous cities of Aurungabad and Ahmednugger, it spread to Poonah; from thence to Panwell in the direction of the coast, where it extended to the north and south, visiting Salsette, and reached Bombay in the second week of September, 1818, one year after its first appearance at Calcutta.

While this was passing in the west of the Peninsula, the epidemic was making the like progress to the east and south, progressively spreading on the whole Coromandel coast, and we have heard of its passing from thence to Ceylon, to the pure air and temperate climate of Siam, from thence to Malacca, and along the straits of Sunda to China*. So that in less than two years it had embraced a space from the most northern parts of Indostan to Ceylon, and from the Indus to China. It has also made its appearance on board vessels, both in harbour and at sea. So alarming indeed has been the extent and rapidity of the progress of this dreadful pestilence, that it becomes a duty to warn Europe of its danger, for we learn from the practice of Sydenham that this disease was twice epidemic in London, in the end of summer and the beginning of autumn.

In my farther account of this disease I shall take the liberty of quoting amply from the Bombay

* It has since reached the Mauritius.

communications. These authorities pretty generally concur with what I laid down with regard to it, as it appeared in the centre division of the army. The vomiting and purging of watery matter invariably took place. The absence of biliary fluid in the stomach and duodenum was also singularly exemplified, and its return was considered as affording a favourable prognosis. Dr. Burrell, Surgeon of his Majesty's 65th regiment, observed that "the first symptoms of the attack were languor with occasional pains and sense of numbness in the extremities, violent head-ache and thirst: shortly there ensued nausea, vomiting of slimy matter, but *no appearance of bile from the stomach or bowels*; then followed spasms so violent as sometimes to require six men to hold the patient.

Mr. Assistant Surgeon Whyte, from whose accurate and well-defined account I shall take the liberty of quoting largely, agrees, that in the whole of his practice there was the same appearance in this ejected and evacuated matter. "The disease generally begins," says Mr. Whyte, "with a watery purging, unattended with griping or any pain. At an interval, generally from half an hour to five or six hours, but sometimes without any interval, comes on vomiting of a white fluid; and I will here add my testimony to a heap of evidence already accumulated, that in this form of the disease, I have never observed any thing re-

sembling bile discharged upwards or downwards. The vomiting and purging are soon followed by great debility and sinking of the pulse; the extremities become cold; the eye sinks into the socket; the vessels of the *tunica adnata* are injected with blood, from which if the disease advances a film in a few hours is formed; the features express the deepest anguish, and the eyelids are either wholly or half closed. The patient invariably complains of great heat at the stomach, and calls incessantly for cold drink, although he is warned of the danger attending it. The tenesmus now becomes violent, although nothing is discharged but the fluid above-mentioned, and a substance like the coagulated white of an egg. The uneasiness and jactitation are so great, that it is with the utmost difficulty that we can get an opportunity of feeling the pulse, which by this time is not always perceptible, although it is generally so till the spasms come on. These attack at no fixed or determined period of the disease, but in general not for many hours after the commencement of the vomiting and purging. Medicine given before their appearance will generally be attended with success."

This is one peculiarity differing from the epidemic of the centre division, in which the spasms came on before the vomiting and purging. I witnessed some cases latterly, in which these muscu-

lar spasms attacked the calves of the legs and abdomen, subsequently to the accession of the purging and vomiting; but in these cases there was evident spasm of the stomach and bowels.

“ The spasms are always of the tonic kind, attack first the toes and legs, and extend up to the thighs, chest, and arms. When they reach the chest, the breathing becomes so urgent, the sense of suffocation so great, that the diaphragm must I think be spasmodically affected at the same time.”

“ The most unfavourable and dangerous signs are the coldness of the surface extending to the region of the heart and stomach. The skin under the nails becomes inverted towards the outer skin; the tongue becomes icy cold; an universal colliquative sweat comes on with shrivelling of the cuticle of the palms of the hands and soles of the feet, the spasms declining while these symptoms continue to increase. In general all pain and spasm leave the patient before death, and although the heart cannot be felt to beat, he expresses himself easy, and says he is better. But sometimes I have seen him in the greatest agony, rolling himself on the ground and groaning, sometimes bellowing, most piteously. This latter circumstance is, I think, confined to patients who linger three or four days before death comes to their relief, in whom the disease appeared at first to have been vanquished, but whose *vis medicalrix naturæ* was

not strong enough to maintain that complete reaction of the system on which the restoration of health depends."

With regard to the appearances on inspection after death, I shall also borrow largely from Mr. Whyte, to whose zeal and exertions, as well as liberal communications, his professional brethren are much indebted.

"Upon opening the abdomen, the most striking appearance was, the enormous distension of the stomach and bowels, not with air, for they were nearly throughout filled with something of a consistence intermediate between that of a fluid and a solid; there was not much of bloody turgescence on their surface, but they wanted the moisture and glossy appearance of health. The liver was much enlarged, apparently from the quantity of blood contained in its vessels, and on one part of its convex surface there was a considerable extravasation of blood. The gall-bladder was filled with bile, and projecting beyond the edge of the liver. The bile was of a very dark color, and the gall-ducts pervious. The stomach was filled with an immense quantity of half-digested rice and meat. The contents of the small intestines were dark-colored, apparently from an admixture of bile. The contents of the large intestines resembled in color ~~that~~ was evacuated *per anum* before death, that is of a whitish colour, and fragments of a

tapc-worm were found, parts of which had been discharged while the patient was alive. The bladder was quite empty and wholly shrunk into the pelvis. I thought the kidneys were of a diminished size. The lungs were so much collapsed that they appeared hardly to fill one-half of the cavity of the chest. The left portion of them was marked with several black spots, but whether they were recent I could not determine. There was no fluid in the pericardium. In the Europeans the appearances in the chest were exactly similar to the above, with the exception of the black-colored spots. The stomach and intestines were much distended, but with wind only, as appeared from their collapsing the moment a puncture was made into them; but the veins on the outside of both, as well as those of the mesentery and mesocolon were turgid with blood, so was the liver, and the gall-bladder was, as in the other case, full of bile. The urinary bladder was completely empty. I shall conclude with remarking, that from the contents of the small intestines in the Sepoy being dark-colored, while those of the large retained the light color which marks all the discharge in this disease, it appears to me that in this case the disorder was proceeding to a favourable termination, which would have been completed had the patient's strength been sufficient."

An important question arises regarding its contagious or non-contagious nature. So many of

those who are exposed to it, escape it, that I am unwilling, as well as unable, to believe it contagious; and were such belief general, it would be productive of great inconvenience and distress, by the dereliction of the sick to which it would give occasion. Among those who have reported on this disease, there is a difference of opinion on this subject. Mr. Surgeon Anderson says, "It is supposed to exist in the atmosphere, from its pervading every where so extensively; but how comes it to spread in opposition to a continual current of air, namely the S. W. Monsoon? Nevertheless the idea of its being contagious is entertained by few."

Mr. Surgeon Jukes, in his report to the Medical Board, states, that he had no reason to believe that the disease had been contagious. "Neither myself nor any of my assistants, who have been constantly among the sick, nor any of the Hospital attendants, have had the disease. It has not gone through families when one has become affected*. It is very unlike contagion too in many particulars. In general I think it has been remarked, that the greatest number of people are affected the first few days after it has made its appearance in any place; whereas contagion would be quite the reverse. There is undoubtedly considerable obscurity however at present belonging to this very singular

* It appears from the preface of the Medical Board to their report, that Mr. Jukes afterwards altered his opinion on this subject.

epidemic, and the laws by which it has been moving, from place to place, are very unlike those of common epidemics. If the exciting cause be something in the atmosphere, which has had its influence from Bengal to the Deccan, how did it come directly against the S. W. wind that has been blowing upon this coast since June? How does it happen that the winds from the ocean still spread the disease? And if it be something general in the atmosphere, why has it not hitherto made its appearance in some two distinct parts of the province at the same time? Nothing of this kind has, I believe, been observed. It still seems to be creeping from village to village, rages for a few days, and then begins to decline."

Nevertheless I have to inform you, that the general opinion is against contagion.

In some situations in India the climate exceeds that of many parts of the world in salubrity and regular temperature, and in which sickness and endemic disease has seldom prevailed. Yet from the Nepaul range of hills running in a line with the snowy mountains which surround the beautiful valley of Catmandoo, to the sandy desert plains extending from the Indus along the Ganges and to Cape Comerin, has this dreadful epidemic spread itself.

I have observed the disease vary by perceptible

degrees with the changes of temperature, and as these changes took place, it seemed capable of operating powerfully upon man and beast ; and although it cannot cease to be marvellous, yet in the grand army a number of cattle died in the most sudden and unaccountable manner. It is a fact, that the indigent and naked part of the lower order of natives seemed to be principally affected by the epidemic influence. I mean those who were confined to particular parts of India, and had never travelled elsewhere ; whilst those who had learned how to evade the severities and vicissitudes of climate escaped the accumulated sufferings and aggravated forms of the disease. In those peculiar local situations in India where the land was fertile and teemed with vegetation of rice to a noxious degree ; in others, where the grass grew man's height ; and in forests of timber and of brushwood where the rays of the sun seldom penetrated, where the waters of grand sacred streams, the Ganges and Hoogly, receded from the land and left a muddy soil and putrid exhalation ; nay, in the very spots where, for years out of remembrance, exhalations rose from marshy bogs, acted upon by intense and suffocating heat, even in these very baneful districts, this disease was never known till now ; the villages which these deleterious lands contained are now, I am informed, entirely depopulated. The pestilence added to *miasmita* had a most terrible effect. But if the history ended here, we might indeed assign these local effluvia as a

cause, but the fairest portion of the Indian Continent, where health was no illusion, where sickness was a stranger, where mountains rose covered with the finest verdure, where rain fell monthly in refreshing showers, where there was no deluging of plains or noxious vapours to contaminate the air, no forest nor grass-jungle to impede its free circulation, where the heat was temperate, equable, and invigorating, where the land was fertilized and the husbandman rewarded, where the luxuriance of nature exhibited a beauteous prospect from the adjacent height; it is too true that in this happy country, the variation of temperature was amazingly great; the disease appeared, and this beautiful country was nearly depopulated.

It now affords me particular pleasure, as it will be highly gratifying to you, to turn from the melancholy scene I have just described, and inform you that the treatment I have hitherto followed, and which the Marquis of Hastings, whose great anxiety on the subject cannot be enough admired and commended, did me the honor to have published in general orders and circulated in the army throughout India, has proved eminently successful. I shall now quote the authority of others for the excellence of the remedies which I found so decidedly and invariably successful in my own practice, and it is gratifying to me to reflect, that through the promulgation of the general

adoption of them, an incalculable number of lives has been saved.

The outline of the treatment alluded to, is, to administer twenty grains of calomel (in powder not in pills) and to wash it down with sixty drops of laudanum and twenty drops of oil of peppermint in two ounces of water, to bleed freely in the early stage, and to support the warmth by external heat, the hot bath and hot friction, and internally by cordials.

The first report is dated Seroor, the 22d of July 1818, by Mr. Assistant Surgeon Wallace. He remarks "The disease is most formidable. We have found the large doses of calomel, oil of peppermint and laudanum, generally succeed in checking the purging and vomiting. But the most formidable symptoms are the sudden debility and coldness, which seem to indicate the use of the most powerful stimulants. The hot bath has been found very useful." This gentleman's third report states as follows: "I believe Mr. Corbyn's practice to be very efficacious when adopted early. The majority of cases did not apply for relief until they had been attacked for some hours, and the medicines were almost invariably rejected in common with every other liquid. I determined to administer the medicine in another form, and rubbed up two grains of soft opium, with fifteen grains of calomel, and about two drachms of

honey. This was gradually swallowed, being dropt into the patient's mouth by the finger. After this he was placed in the hot bath, and small quantities of hot arrack and water mixed with spices and sugar given to drink. The patient commonly fell asleep, and in favourable cases awoke free from danger. In others the coldness and spasms recurred, when recourse was again had to the hot bath, and opium administered in various forms. Twenty-two cases only were admitted yesterday, and all of them except two have recovered."

Dr. G. Burrell, Surgeon of the 65th regiment, dates his report at Scroor, 27th July 1818, and makes the following return. It broke out on the 18th instant.

Admitted	21st	.	1
	22d	.	6
	23d	.	6
	24th	.	18
	25th	.	22
	26th	.	7
<hr/>			
	60	Died, 4	
<hr/>			

"On admission I bled in every instance, in general to a good extent. Where universal spasm existed, venesection was carried *ad delirium*, and the patient was at the same time put into a hot

bath of 110°. The spasms were, by these means, invariably relieved, nausea and vomiting alleviated, so that the stomach bore the exhibition of calomel in scruple doses, combined with laudanum, which doses were frequently repeated; in short, the opium was given under every denomination, with calomel, and I believe the calomel will be found to rest on most stomachs *per se*.

The next report is from Mr. Surgeon Whyte, dated Serroor, the 28th of July, 1818. He states, "The practice I had followed was that first recommended by Johnson*, and since by Mr. Corbyn, in which the corner stone and sheet anchor is calomel, in a dose of fifteen or twenty grains of the former, to an adult according to his strength."

We now come to that of Mr. Assistant Surgeon Daws. His letter is directed to Dr. Jukes at Tannah, dated at Aurangabad, 29th of July, 1818. He remarks as follows: "I presume you have seen the letter written by Mr. Corbyn, who had charge of the Native Hospital, centre division of the army, at Eritch, to Captain Franklyn, Assistant Quarter-Master General of the same division. On this subject I could not perhaps do better than recommend you to pursue the plan of treatment therein laid down, as it is the same, with very little variation,

* In his work on the influence of tropical climates on European constitution, where he quotes the case of a seaman who had swallowed a scruple of calomel.

that I have adopted, and you will be glad to hear that the success of my own practice tends to corroborate it."

The next report is from Mr. Surgeon Craw, dated Seroor, 30th July, 1818. He observes: "The calomel and laudanum plan, with most diffusible *stimuli*, and the hot bath, have been eminently successful; and if application is made within four or six hours from the first appearance of the disease, the cure is almost certainly effected." In another place he remarks, that a bleeding *quoad vires*, the calomel and opiate, the hot bath, warm clothing, and frictions spirituous or anodyne, form the chain of treatment in the European Hospitals here, and these are repeated again and again as the symptoms may seem to demand. Under this plan, and an early application for relief, I think the disease is not fatal in more than one in a hundred cases.

The following report is from Mr. Assistant Surgeon Campbell of the 22d dragoons, dated from Seroor. "The scruple dose of calomel with Corbyn's anodyne draught was given every two hours, but when the spasms and vomiting had ceased, the laudanum was omitted, the calomel continued, and the stimulants more frequently given."

The next report is from Mr. Assistant Surgeon Tod, dated Camp Chumargoody, August 8, 1818.

“The way I have administered medicine is by giving calomel, one scruple, and washing it down with *tinctura opii*, one drachm, and water, two ounces, and repeating them after an hour, if the first dose is rejected. I have sometimes left the interval of an hour, which generally succeeds; but I have, in a few instances, been under the necessity of giving it three or four times.” In another place, this gentleman adds, “I have had altogether an hundred cases where the calomel and opium plan has been followed, and though ten or twelve have died, these were either such aged subjects that no rational hope of recovery could be entertained, or were brought in at such an advanced stage of the complaint as to be beyond the power of medicine.

Mr. Assistant Surgeon Milwood writes the next report, which is dated Ahmednugger, 2d August, 1818. “I will now give my treatment with my reason for the addition I have made to Mr. Corbyn’s. There are two great objects to be attained for the recovery of the patient: 1st, to allay the vomiting and purging; 2ndly, to restore the pulse and heat of the extremities and produce sleep. In order to effect these, I have, in addition to one scruple of calomel, put five grains of antimonial powder, and added to the draught one drachm of *spt. æther. nitros.* In the course of two hours I give ten grains of calomel and five of antimonial powder, with half the draught which I prepare with cam-

phor mixture in place of plain water, and repeat this as it is required. The best laxative I have found to be carbonate of magnesia, four scruples. It remains on the stomach, and generally causes two or three plentiful evacuations.

Mr. Assistant Surgeon Richards reports as follows. Punderpoor, 3d of August, 1818. "Up to this morning the admissions amount to 170; out of which eight casualties have occurred." This gentleman bled, and used the calomel and laudanum doses.

To evince how essentially necessary bleeding is, Dr. Burrell sends the following return :

Bled .	88	Died .	2
Not bled .	12	— .	8
	—		—
Total admitted	100	— .	10
	—		—

I now come to Mr. Surgeon Longdill's report, dated Seroor, 17th of August, 1818. "My general plan of treatment was to give the dose recommended by Mr. Corbyn. If it was rejected, another was given, after waiting an hour, with the warm bath, which generally relieves the patients. After which they required little else but cordials and a gentle laxative."

Mr. Surgeon Robertson, of the European regiment, on the Bombay establishment, dates his report from Keerky, and states that bleeding relieved them, and that calomel and opium brought them quite round.

The report which succeeds is from Mr. Surgeon Gordon, dated Satara, 5th of September, 1818, "I sent you a report in which I stated that I laid considerable stress on free and early blood-letting. Since then I have had eleven cases, bled the whole of them, then opened the bowels, and they are all quite well.

Mr. Surgeon Coats reports to the President of the Medical Board, that "the practice followed in the treatment of this disease at Aurangabad was that recommended by Mr. Corbyn, and had been particularly successful; indeed, if the patient applied in time, it was considered as infallible.

Mr. Surgeon Jukes next reports, that "experience has now taught us that a very large proportion of those attacked by the disease, recover by the calomel and laudanum alone; but I feel satisfied that there are many aggravated cases wherein nothing but the most prompt and decided use of the lancet could possibly save the patient."

The next report comes from Dr. Taylor, a gen-

the man who had the principal practice in the disease at Bombay. This practice is precisely similar to the foregoing; he gives the following return:

Medicine administered to . . . 7459
 Of whom died . . . 441
 being a proportion of nearly six to an hundred.

The last report is from George Ogilvy, Esq. Secretary to the Medical Board, confirming the treatment already mentioned, and the reports are concluded with the following abstract of cases which occurred in the island of Bombay.

1817.	Cases.	Deaths.
August	4400	456
September	4804	287
October	2411	146
November	824	44
December	806	64
1819.		
January	889	114
February	517	27
	<hr/> 14651 <hr/>	<hr/> 1138 <hr/>

Proportion of deaths in those cases in which medicine was administered, 6.6 per cent. In the same space of time 1294 cases were reported by the police, in none of which medicine was administered, and it is a most important remark by

Mr. Ogilvy, Secretary to the Medical Board, that it was not ascertained *that any case had recovered in which medicine had not been administered.*

The population may amount to between 200,000 and 220,000. The number of ascertained cases was 15,945, which gives the proportion of the attacks of the disease to the population $7\frac{1}{2}$ per cent.

I believe I have now satisfactorily proved to you the efficacy of the treatment I recommended. I shall add the remarks of the Medical Board of Bombay, made after summing up the whole of the opinions regarding the proper mode of treatment to be adopted.

“ On the subject of the cure of the disease we need say but little. The practice so judiciously and speedily adopted by Dr. Burrell in the 65th regiment clearly proves, that in the commencement of the disease in Europeans, blood-letting is the sheet-anchor of successful practice, and perhaps also with the natives; in this I have entirely concurred in my printed report, but have there said nothing of this practice among the natives. I tried bleeding with the natives, but could get no blood from the arm, and finding every efficacy from the medicine I prescribed, I had no occasion to make a second attempt; but I have no doubt you will perceive from the principles on

which I ground the cure, that the venesection is advisable in all cases where blood can be obtained;" to proceed—"provided it can be had recourse to sufficiently early in the disease, and as long as the vital powers remain so as to be able to produce a full stream, it ought never to be neglected, it being sufficiently proved that the debility so much complained of is merely apparent. Calomel as a remedy certainly comes next in order, and when employed in proper doses with the assistance of opium, more particularly in the early stage of the disease, seems to be equally effectual among the natives, as venesection among the Europeans, in arresting its progress. In all the cases formerly alluded to, when we met with the disease in its first attack, a single scruple of calomel with 60 minims of laudanum, and an ounce of castor oil seven or eight hours afterwards, was sufficient to complete the cure. The practice of this place, as sufficiently appears from Dr. Taylor's report, bears ample testimony to the controul which calomel possesses over this disease. All other remedies must in our opinion be considered as mere auxiliaries, no doubt extremely useful as such, and ought never to be neglected, particularly the warm bath and stimulating frictions."

I trust, Sir, I have now performed my duty in giving you a full and accurate account of the nature and treatment of this alarming epidemic. I am still accumulating information, but in the mean

time as my object is utility and not emolument, I beg you will give publicity to this letter, by procuring the insertion of it in that excellent work, the Transactions of the Medico-Chirurgical Society.

I am, my dear Sir,
Your very obedient Servant,

FREDERICK CORBYN.

To Sir Gilbert Blane, Bart.

Such is the account, for which we are much indebted to Mr. Corbyn, of a malady, which, viewed in all its bearings, is without a parallel in the annals of physic. Whether considered in the tragical details of its sufferings and fatality, the obscurity of its origin, the sagacious, energetic and successful practice by which it was opposed, or the singular circumstances of its rapid progress and its diffusion over so large a portion of the habitable globe, it is one of the most interesting and affecting objects that can engage the attention of mankind, particularly of the medical world.

Some conception may be formed of the intensity of the sufferings from what is commonly experienced of the torture from the cramp of a single muscle in the leg ; for what must be the agonies of those in whom the whole muscles of the extremities and trunk are so affected, and what the superadded anguish of those in whom the breathing

is impeded by a like affection of the muscles of respiration, including the diaphragm, not to mention the stomach with other muscular and vital organs, all thrown into the like excruciating contractions! When to these are added the attendant symptoms of despair and prostration of mind, it will be difficult for imagination to conceive a more exquisite picture of human misery.

There is therefore great cause of gratulation to humanity, as well as much matter of triumph to the medical art, in means having been devised for stripping this disease, almost invariably fatal when left to nature, in a great measure of its terrors and danger, by the bold and combined administration of two potent remedies; the one possessing, along with an active evacuating quality, a powerful specific influence on the secretions; the other displaying those anodyne antispasmodic stimulating and exhilarating virtues, which render it one of the most indispensable instruments in the hands of the medical practitioner.

One of the first circumstances which strikes us in the history of this disorder, is the name it has acquired, the term *cholera* seeming to imply that it consists of a redundancy or depravity of the bile; whereas it appears that the secretion and excretion of the bile are entirely suspended, and that the matter evacuated by vomiting and purging is quite of a different character. This is an inaccuracy however, into which the ancients, as well as the

moderns, have fallen, and is best elucidated by Alexander Trallian*. This ancient author describes three species of cholera. In the most intense, there is no evacuation of bile, and he thinks the name might more properly be derived from *χολαδες*, an old Greek word used by Homer, to signify the bowels, than from *χολη*, bile. In the species next in degree, however, he says there is a great discharge of bile, and being attended with excruciating spasms like the former, obtains the same name. The third species is a simple bilious diarrhœa without the spasms. In the disease, as it occurs in ordinary practice, in this country, most commonly in the month of August, after the canicular heats, one of the most prominent symptoms is certainly the discharge of a large quantity of bile, and seems to be the middle species of Trallian. Hippocrates says little of the nature of the evacuations, only that green bile forms part of them. Arctæus, in his description, says, that the evacuations are at first pituitous, and then of pure yellow bile. Celsus says, that matter of a white color is evacuated, sometimes black and of various colors; but he does not describe it with his usual precision, for he calls the white matter bile, using the term in the same vague sense as many persons out of the profession in our times, applying it to every morbid humor of the stomach. In the works of Sauvages, Cullen, and most modern authors, there seems to be a want of due precision and care in

* Lib. VII. Cap. 14, 15, and 16.

specifying bile as the only or chief matter evacuated. The cholera of Sydenham seems to come nearer to the intense species of Trallian and to the Indian epidemic than any other modern before Mr. Curtis*, and it seemed to prevail, epidemically, in England in 1669, and still more severely in 1676. He says nothing of bile, and characterizes the evacuated matters by the name of *pravi humores*. There seems, however, in all cases to be a propensity to a redundant and vitiated secretion of bile, for sooner or later it makes its appearance, though in the intense species of the disease the secretion of it is suspended in common with the urine and other secreted fluids ; but on the disorder giving way, and the secretions being restored, large quantities of dark colored bile are immediately observable in the discharges from the bowels, the tendency to its redundant and vitiated production having then scope.

Some of the Indian practitioners have been so much struck with the impropriety of calling this disease *cholera*, that they have studiously abstained from giving it this name. As a matter of philology, we certainly, by retaining this name, run the risk of falling into the same absurdity as the scholiast, who so preposterously derived *lucus a non lucendo* ; but, on the other hand, we have the highest cri-

* See Account of the Diseases of India, as they appeared in the Fleet, in 1782.

tical and classical authority in points like this, for implicitly submitting to established usage as the sole arbiter of speech, without regard to etymology. We will do well then to retain the old name, particularly as no other or better has been proposed by those who have laid aside the old one. Under this explanation it can lead to no mistake, ambiguity, nor error of practice ; and as the most prominent character, next to the bowel affection, is the cruel muscular cramps, the epithet spasmodic is here added to it, omitting the word *morbis*, which was first employed to distinguish it from the metaphorical sense of the word as applied to a passion of the mind. If no name had hitherto been affixed to it, it might be denominated the *colica spasmodica maligna*.

Beside what has been extracted from the Bombay communications by Mr. Corbyn, there is little of importance, either in the description or practice. In some of the dissections there is more mention of congested blood in the veins of the intestines, and of the appearance of inflammation on the stomach, even to the effusion of coagulable lymph on its surface, in some subjects. This is what might naturally be expected, from the bloodless state of the extremities, and surface of the body ; the circulation there seeming almost suspended, as appeared by the absence or weakness of the pulse, the extreme cold and shrinking, the mass of blood being determined to the bowels ; and this seems to

account for the burning pain at the stomach, and the success of blood-letting. Some of the gentlemen in their descriptions seem to labor as if at a loss for language to convey an adequate idea of the shrinking of the limbs and trunk of the body, the shrivelling of the skin, the collapse of the countenance, and the sinking of the eyeballs. It would appear, that the total absorption of the *adeps* had also contributed to this, so great and rapid was the emaciation; and might not the thick white matter, so constantly described as discharged from the bowels, have been the contents of the adipose membrane, thrown on the bowels in the same manner as serous fluids are thrown on them from disease, or the operation of medicine?

We find in these documents also a very interesting and instructive observation regarding the comparative susceptibility of the Europeans and the natives. While thousands of the latter were perishing by the epidemic in a district near Bombay, only six European soldiers died of it. This forms a guide to the *prophylaxis*, namely, good nourishment, good clothing, shelter from the weather, and the avoiding of fatigue; these being the circumstances in which the natives and Europeans differ.

There also occurs an incidental remark, well worth recording, with regard to the dose of calomel and laudanum, which may be safely and even

beneficially administered. “ By mistake twenty grains of the former, and sixty minims of the latter, were given at the interval of less than half an hour. The patient was inclined to sleep ; nothing more was done, and in two hours and a half he was as well as ever he was in his life.”

The farther remarks on the question of contagion are also deserving of notice. The following extract contains the opinion of the Bombay Medical Board on this subject. “ On the 6th of August, 1818, it broke out with great violence at Panwell, a considerable village in the main line of communication between Poona and Bombay, separated from the latter by an arm of the sea, and distant from fifteen to twenty miles ; but between which a pretty constant communication is kept up by means of boats. On the 9th or 10th of the same month, the first case appeared in this island, and, as is mentioned in Dr. Taylor’s report, could be traced to a man who had arrived from Panwell the same day. It is also evident from Dr. Jukes’s report, that it spread north and south along the sea coast from the same place, and that it was imported to a village in the neighbourhood of Tannah in the island of Salsette, distant from this place about twenty miles, by a detachment that escorted a prisoner from that garrison to Panwell. The disease did not break out at Muhim, on the extremity of this island, distant only five or six miles from the principal native town of Bombay,

until it had been established in the latter ; it then gradually spread over the western side of the island to Salsette, through which the road from Bombay to Surat and the northern countries lies ; and by which during the south-west monsoon, is the principal line of communication. By the observation of some individuals*, who, aware of the danger of the malady, and with the humane view of relieving the sufferings which it inevitably produced, carefully watched its progress, we are enabled to trace the disease as if creeping along from village to village on that island precisely in the same way, that is, by the arrival of people affected with disease from places where it was known to prevail ; and we are assured that there are some villages in that island, which from want of this sort of communication, or from some other cause, have, after a lapse of four months, hitherto entirely escaped.

From the foregoing detail, which, to some, may appear too minute, we are disposed to conclude that this epidemic is not only different in its nature from those that have hitherto been observed ; but that it may be said to stand alone, in regard to

* Amongst those, we have great pleasure in mentioning the name of ensign W. A. Tate of the corps of engineers, stationed on Salsette ; who, among other arduous duties, paid the most unremitting attention to alleviate the suffering of a large portion of the population, and to whose humane exertions, some thousand of the inhabitants owe their preservation.

some of the more essential characters which usually distinguish those diseases.

In the first place, it has prevailed to a degree equally violent at all seasons of the year ; in regard to temperature, from 40 to 50 degrees of Fahrenheit to 90 or 100 ; in regard to moisture, during the continuance of almost incessant rain for months, to that dry state of the atmosphere which scarcely leaves a vestige of vegetation on the surface of the earth.

Secondly. Although what has been adduced may not appear to some to be sufficient evidence of the fact, it appears to us incontrovertible, that it is capable of being transported from one place to another, as in cases of ordinary contagion or infection, and also to possess the power of propagating itself by the same means that acknowledged contagions do, that is, by the acquisition of fresh materials with which to assimilate, at the same time perhaps, subject to particular laws, with which we may never become acquainted. Aware, however, of the doubtful nature of the ground which we tread, amidst the contrary opinions that have been advanced on this subject, we shall content ourselves with stating a few facts, which have been supplied by gentlemen, whose reports have been already printed, and which might be increased much beyond the limits to which we think it necessary to confine ourselves. In October last, when the

disease had almost disappeared at Tannah, the attention of Mr. Jukes was called to a case that had occurred in one of the apartments of the barracks of that fort appropriated to European troops ; this, owing to too late application for medical aid, soon terminated fatally ; another case occurred a few hours afterwards, the subject of which was saved with much difficulty and after much danger, and in the course of six succeeding days, no less than nine cases occurred in the same apartment. The curiosity of Mr. Jukes was naturally excited to ascertain under what circumstances so much disease was produced, and on examination, the ward appeared to be both badly ventilated and too much crowded with men ; the place was immediately emptied, scoured, and fumigated, after which no other case occurred. Since the middle of December, when we had flattered ourselves that the disease was vanishing as the cold season advanced, the number of cases considerably increased in this island, Salsette and the Conkan, and consequently excited much alarm ; in some instances these cases have been confined to particular spots, and sometimes to particular houses, where the disease has attacked and destroyed, in succession, whole families, consisting of three, four and five persons, while, in others, only a single case, or at most, very few have occurred. We are utterly ignorant of any local circumstances to which such a change can be ascribed ; unless by supposing that a diminution of temperature, together with exposure,

may have called into action some latent remains of an active poison ; otherwise it seems difficult to reconcile those facts with what is observed in ordinary epidemics. It will be observed that Mr. Jukes, in his report, remarks that the disease, as it at first appeared at Tannah, did not go through families when one had become affected. He has since seen sufficient reason to alter his opinion in regard to that particular ; and we think that we observed in several instances, that the disease has shewn a greater tendency to spread, where the first attacks have proceeded in their course to a fatal termination, which they invariably do when not counteracted by medicine. How far the same thing has been observed to happen in other epidemics we cannot determine.

The next testimony on this side of the question is that of Dr. Burrell, who says, in his report dated Seroor, July 27, 1818 : “ As every epidemic, by accumulation of subjects, has a tendency to propagate its *virus*, I am cautious in reporting this disease not infectious. Almost every attendant in the Hospital, in the short space of six days, has had the disease. There are about thirty attendants in the Hospital.”

In proof of the contrary opinion, the authority of Mr. Assistant Surgeon Whyte may be cited, who, in his report dated Seroor, Sept. 7, 1818, says, “ Convinced as I am of the total absence of

contagion in this disease, I have observed the late revival of this opinion with some degree of pain. Surely, if it was at all contagious, the fact of its being so could not remain long doubtful. In the general hospital here, there were three Sepoys, who resided continually from the first appearance of the epidemic, inhaling by day and night at every inspiration, mouthfuls of the infection. If the atmosphere was really loaded with contagious effluvia arising from the bodies of the patients in the hospital, the escape of these men (which has been complete) would be miraculous, indeed; living, as they were, in the very midst of these *effluvia*, and so near their source. Allowing that the constant habit of doing so procured them an exemption from the influence of contagion, the same thing cannot be said of the friends and relations who were attending upon the patients, and of six dooly bearers, changed daily, and who used to assist the sick into and out of the bath, and in every other way; thereby exposed to be infected by the disease, whether it is conveyed through the medium of the atmosphere or by touch; yet I have not known one instance of dooly bearers, friends and attendants of the sick being so infected, nor have any of our hollalchones or hospital assistants suffered.”

The next extract shall be from the letter of Captain Sykes to Dr. Milne, dated Punderpoor, 15th of August 1818; and as this is mere matter of

evidence, upon which persons of good sense out of the profession are competent to decide, (perhaps not the less so that they are not biassed by any theory or preconceived opinion) some weight is due to it. " With respect to the origin and nature of the malady, I am incompetent to give an opinion ; but that its progress is independent of the air, I think there are many circumstances to justify the belief. In the first place, we see that it has made its way independent of a permanent S.W. wind from Jaulna down to Punderpoor. Its effects were not instantaneous in the country ; but its progress may be traced, by a slow advance, to from 15 to 29 miles a day, as if it had been communicating gradually by persons travelling from town to town. Its principal ravages about here appear to have been confined to the high roads leading from Punderpoor and the large villages in the neighbourhood, and I dare say it might be proved that it did not break out in any village, until that village had communicated with a neighbouring place in which the disease existed. Corroborative of this, are the observations I made at Natapoota of the 17th of July. That day I descended the Mahadoo ghaut from the town of Singnapoor, in which the disease was unknown, and marched six miles to Natapoota ; where the plague had that very day made its first appearance. It first appeared in Punderpoor on the 14th, so that it had taken three days to travel 40 or 50 miles to Natapoota. There are other circum-

stances also to justify the belief that it is contagious. In my light company there were three or four men taken ill at once; of course there were attendants from the same company upon these men. The disease went on increasing in that company, and there have been more cases of cholera in it than any other. One of my servants was attacked: it gradually extended to five. An officer at Punderpoor had seven servants attacked one after the other; the gentleman in the next tent had not one. I have seen a similar instance in our corps. I should infer therefore, from its running in particular companies of a corps, or sets of servants, that, as they attend on each other, and constantly sit or sleep in the confined space of a small tent, the disease is communicated by absolute contact, or from respiring the same air that a diseased person has done. I am aware that there are very strong arguments against its being infectious, persons escaping who have been in constant habits of handling the sick and breathing the air of the cholera hospitals."

Mr. Surgeon Coates, in a letter to the President of the Medical Board at Bombay, says, "At Tokah we were visited by a gentleman from Aurrangabad, who brought us accounts of the disease raging in that city; but the idea was, that it had been brought from Jaulnah where it now also raged, and that its progress through the villages in the post road from Nagpore to that station could

be distinctly traced." In another part of his report he says, "From the above facts and others which have been related, I consider the disease infectious; but though this opinion should be well founded, it ought to occasion no alarm, for it is only under some peculiarity of constitution, and that fortunately very limited, that the poison acts. About 1 in 40 in our camp was attacked, and I should think this is above the usual proportion. If the disease were occasioned by a distempered state of the atmosphere, it would have spread over the country with some sort of regularity, but it seems generally to have travelled in lines along the post roads, and always to have required a succession of subjects for its propagation. In Candeish, where there is not sufficient population, and but little intercourse between the villages, its progress was slow. At Punderpoor it made its appearance at the time of the great Jatra, and was spread at once in all directions by the pilgrims returning to their homes; the number of deaths here was 3000 in a few days. The patients are described as being knocked down as if by lightning. We know nothing of the state of the body which predisposes to the disease." "Mr. Coates mentions a circumstance at the conclusion of his letter, which leads to the idea of the infection lying dormant for some time as in the case of small-pox. He says, I might have mentioned that all the subjects predisposed to the disease, seemed to have been attacked at the places where it appeared within ten or twelve days."

The last extract relating to this subject, shall be taken from the report of Dr. Taylor to the Medical Board of Bombay, dated 16th of Nov. 1818. “ Whether the disease be contagious, or a simple epidemic produced by some peculiar state of the atmosphere, is a question which has been a good deal agitated. The course which it has pursued from one extremity of India to the other, unchecked by different states of temperature, and by great variations of seasons; its proceeding even against the powerful monsoon winds, and its having been traced moving along the high roads from place to place, have been urged as proofs of its contagious nature. The manner in which it was found to have originated and to spread at this place, lends some probability to the same opinion. Its introduction to Bombay has been clearly traced to a person who came from the Deccan, and passed through Panwell when this disorder was raging there; and it has been observed here, that whenever it appeared in any particular spot or family, a considerable proportion of the family, or of the neighbours, were attacked within a very short period of each other; on many occasions I have seen three or four of a family lying sick at once. In bringing forward these facts, however, it may be proper at the same time to state, that of the 44 assistants employed under me, only three were seized with the complaint.

The communications from the Mauritius, come next to be considered. It appears by a report made by the principal medical officer there to the President of the Medical Board of the Army, that the disease first shewed itself here on the 20th of November, 1818, and continued to prevail, though with considerable abatement, till the 18th of December, when the last accounts came away. In that time sixty-nine cases had occurred in an army consisting of 1472 men, of whom fourteen had died. It appears by a communication made to the writer of this, by a gentleman high in the Civil Service of the Government, that from the time of its breaking out till the date of his letter, December 18th, the number of burials during the same period was 700. The ordinary average was from 90 to 120 in the same space of time. This is independent of the deaths in the country districts, which have been very numerous. By still more recent accounts it appears that the total mortality in the island amounted to several thousands, and that the number of cases in the army, from the 19th of November, 1818, to the 4th of February, 1819, was 269; of whom, 235 were discharged; 31 died, and 3 remained. Here, as in India, by far the greatest proportion of seizures took place in the laborious classes of the population. Only twelve of the white inhabitants had died of it; but this class of the population lost not a moment in removing from the town on the first alarm, and every

precaution was taken as if the disease had been contagious.

With regard to the practice, opium and calomel were administered to the cases in the army, but in smaller doses than in India. Little is said of the civil practice, except that one of the French practitioners stated that he found great benefit from the administration of repeated doses of two drachms of the sulphate of magnesia. It has been already mentioned that the mortality in the civil hospital was 94 in 133 admitted. The deaths in the town by the report of the French practitioners were 194 in 440 admitted. By comparing these statements with those in India, it will be seen that the success was much greater in the latter.

There was here the like difference of opinion regarding the contagious nature as in India. The principal medical officer denies its being contagious, and ascribes the appearance of the disease to the unusual degree of atmospheric heat. Another medical officer is of opinion that it is contagious, and that it fell most heavily on the attendants of the sick. From the great alarm of the inhabitants, it is evident that they were impressed with the same belief, and did not doubt that it had been imported by the *Topaze* frigate, which arrived at Port Louis on the 29th of October from Ceylon, where it prevailed. Of 17 who

were taken ill of this disease on the passage, 3 died, by the report of the surgeon, beside two previously; the whole number of deaths by that disease being stated at 5 on board for the preceding 18 months.

It is of the utmost importance that the question regarding the infectious nature of this malady be decided. The facts and the arguments on both sides of the question have been fully detailed. It has been already observed, that if it is not contagious, and that the general belief should prevail of its being so, the most serious distress and inconvenience would arise, from the dereliction of the sick, to which it would give occasion. But on the other hand, the mischief would be infinitely greater, should it be really infectious, and the contrary opinion prevail. It is evident that the settling of this question must be of the most grave, serious and vital moment to the community, and to the character and feelings of the medical practitioner, to whose opinion the world at large naturally look up, and from whose decision, if erroneous, the most direful calamities must ensue. It is indeed hardly possible to conceive a higher and more sacred responsibility to exist, for upon such decision hangs the fate of thousands, who may, by a mistaken opinion, perish of a disease perhaps the most excruciating in the whole catalogue of human maladies, not to mention that the peace of mind of the individual who pronounces the sen-

tence, as well as the credit of the profession at large, is deeply involved in the opinion he may deliver.

The main argument of those who maintain non-contagion is the exemption of the great numbers who are exposed to breathe the *effluvia*, and to the contact of the affected subjects. To those who employ this mode of reasoning, there are two considerations which seem to have escaped their attention. The one is, that the same principle will apply still more strongly against its being derived from a general atmospheric cause, whether this is made to consist in a higher degree of temperature, or in some contamination from the exhalations of the soil or other cause. For it is evident, that as all must breathe the same air, all ought to be seized; whereas it is possible that many may avoid inhaling the morbid *effluvia* of the sick, which is so much more partially diffused. Those who have remained exempt, must have been equally exposed to the cause as those who are taken ill, if that cause proceeds from the soil or the atmosphere, or any other universally diffused cause, such as must exist if contagion is denied.—The other circumstance not adverted to, is, that in no case of epidemic disease, however distinctly depending on the morbid poison of the sick, is the whole population affected in the same manner. If this were not the case, the plague or small-pox would long ago have extinguished the human species, whereas great

numbers who are taken ill of both, escape with their lives, and others entirely resist the infection. It is clearly stated in some of the testimonies already recited that, except in the hard-living part of the community, only a small proportion of those exposed, were susceptible, from some inscrutable modification in their constitutions, and it appears that after all the susceptible had been affected, the disease abated, and speedily disappeared.*

The circumstance which most obviously discriminates an epidemic arising from the morbid poison engendered in the human body, that is contagion, from those which arise from affections of the atmosphere, whether consisting in alterations of temperature or in contaminations from the soil, is that the progress of the former will necessarily be *progressive* and traceable to human intercourse, whereas the influence of the latter will as certainly be *contemporaneous* in situations more or less distant. It will be clearly perceived, by a careful perusal of the preceding history, that the spread of this malady has been strictly progressive, and evidently carried by human beings from one district to another; nor is it conceivable that those requisites of temperature and contamination of the atmosphere, could have occurred by mere accident at those spots and periods in which the disease shewed itself in its progress by sea and land, as historically ascertained in the preceding narrative. This is no where more striking than at the Mauri-

tius. This island is near 3000 miles from the other places at which the epidemic raged ; and can any mind be so constituted as to believe that a new disease of the identical nature with that which had ravaged all India, should have shewn itself by mere accident at the very time when its appearance was in exact conformity with the supposition of its being imported by the frigate ? For let us suppose that the inhabitants of the Mauritius were all, or most of them, susceptible of the small-pox from the long absence of that epidemic, and that a ship should arrive in which several cases had recently occurred, and from which thirty of the sick were landed, and a free intercourse admitted, as stated in the transmitted accounts, it would break out about the same distance of time, that is about three weeks after the arrival of the ship, for no subject might be exposed to the morbid *fomites* for a week or two, and the infection would remain in the system for ten or twelve days, a circumstance common to these two epidemics, and which took place with regard to the cholera after the arrival of the *Topaze*. This subject indeed cannot be better illustrated than by running a parallel between the actual progress of this epidemic and the usual course of small-pox. Let us put the case that small-pox had been introduced into Calcutta in August, 1817, and that the whole of India had been so long a stranger to it that all the inhabitants were in a susceptible state, would it not take exactly the same di-

reception and propagate itself in the same manner as we have seen the cholera to do? It would extend itself to that quarter in preference to any other in which the greatest human intercourse was going on, that is towards the North-West, where the affairs of government and commerce, and above all, at that period, to the quarter where the Grand Army was assembling, on the banks of the Jumna. This was the route which it actually did take, and the like causes carried it into the Deccan, and from thence to each side of the Peninsula of India, where the communication of human beings was going on, and advancing most rapidly where this communication was most frequent, reaching at last the sea-port towns on the Coromandel coast and the island of Ceylon, where having got on board of ships it was transported over seas and oceans to the continents and islands to which these ships were destined.

It farther resembles the small-pox in the subtleness of its communication, the infectious matter of both seeming more volatile than that of the plague; for though we have been able to trace it on the great scale, it has been found occasionally like the small-pox to break out in spots a few miles distance from the known seat of contagion without its being possible to trace it. It is to be regretted that the same circumstance renders it extremely difficult in the case of both diseases, to take measures however

judiciously framed and vigilantly executed, which shall be effectual in preventing their introduction.

The only other hypothesis that has been devised to account for the remote cause of epidemics in general, besides the exhalations of the soil and the infectious effluvia of the living body is that which was suggested by Sydenham, of subterraneous mineral effluvia arising from time to time. This has been actually alluded to by one of the medical officers of India as a probable conjecture ; but not to mention the untenable ground of an assumption purely gratuitous, and neither supported by fact nor countenanced by analogy, it may be asked how it is conceivable that these effluvia could exhale from the earth in the progressive manner in which this disease extended itself, and how will it account for its appearing on board of ships at sea, or at remote spots where these ships arrived, the Mauritius for instance, 3000 miles distant from India, while it was unknown at the Isle of Bourbon, a small neighbouring island in the middle of the same ocean, in the same atmospheric stream of air, being situated about thirty leagues to leeward of it ? And we may here take occasion to mention that intelligence has just been received in England through the French journals, that a ship arrived at one of the ports of France on the 9th of May, in ninety days from Bourbon, which she must have left therefore on the 10th of February, at which time the disease had not appeared in that island,

and that a strict quarantine had been instituted from the moment it was known to have shewn itself at the Mauritius about three months before*.

* Since this sheet was sent to the printer, intelligence has been received from the Mauritius, dated the 21st of March, from which it appears that the epidemic had then entirely ceased there, and that a ship had arrived the day before from Bourbon, with accounts of its having appeared there in spite of the precautions, but had been confined to the town, and had ceased when the ship sailed.

POSTSCRIPT.

Read June 6, 1820.

SINCE the preceding article was read to the Society, intelligence has been received of the introduction and spreading of this malady in Ceylon ; and the Medical Board of the Army having with its accustomed liberality communicated it to the Society, we shall extract what is most new and important.

Dr. Davy, an ingenious medical officer, already favourably known in the scientific world, mentions in his report that it had prevailed there from January 1819 to June of the same year ; that it appeared quite unconnected with the direction of the wind, with the dryness or moisture of the air, with heat or cold, with elevation or lowness of situation, with great salubrity or unhealthiness of climate, nor with any sensible changes in the state of the atmosphere. He remarks, that there was in some of the cases which he dissected, a flaccidity of all the muscular parts after death, as in animals killed by electricity or hunted to death ; there was also a tenderness of the muscular fibres.

He remarks too, that there was no difference in the colour of the arterial and venous blood, both being of the dark hue of the venous; and there was no instance of a buffy coat on the blood that was drawn. He analysed the expired air of the sick, and found that it did not contain more than one-third of the carbonic acid contained in the breath of healthy subjects.

Mr. Finlayson, another medical officer of great diligence and accuracy, observes, that it first appeared at Jaffnapatam, the most northerly sea-port of Ceylon and nearest to the continent of India, with which it is in constant intercourse. From thence it spread to the southward along the coasts and into the interior of the island. He observes, that there were some symptoms varying from those described on the continent of India, and describes a class of cases distinct from the ordinary form of the disease. In these the spasms were much less frequent, and some expired in a few hours, without exhibiting any of the characteristic tokens of the disease, except an extreme prostration of strength. There was also great thirst, and in some a greedy appetite for food. The warm bath and all other warm applications were extremely distressing and insufferable to them; all medicines seemed rather hurtful than beneficial. There seems something in this analogous to what we learn of the plague, in which some persons drop dead in an incredibly short time after being exposed to its infection,

particularly to that by *fomites*, conveyed in bales, which is alleged to be more virulent than the recent contagion from the sick. There was also something peculiar found on the inspection of the bodies of those who died under this form of the disease, namely, great congestion of blood in the brain, insomuch that it had the appearance of being enveloped in a layer of dark coagulated blood, or by a diffuse and general ecchymosis, and in some cases, when it was cut into, large quantities of blood gushed from it, and from the *theca* of the spine. In the ordinary form of the disease, this appearance was not found, the blood in these being accumulated in the abdominal viscera. Indeed, all the descriptions here and elsewhere, concur in stating, that the whole circulating fluids retreated as it were from the surface and extremities, so that the entire mass of blood was determined on the vital parts. The blood was found to be fluid, so that it was necessary to open the great vessels with caution in order to prevent the inconvenient effusion of it. In several cases, the surface of the heart and pericardium was lined with a green coloured gelatinous fluid. In some cases no fluid was found in the *pericardium*, in others as much as an ounce and a half. There was found a dark coloured fluid in the stomach, and a colourless fluid in the rest of the intestines, which he says were blanched like tripe. All these appearances belong to the cases of early death that have been described.

When the disease proved fatal in the advanced state, there were extraordinary congestions of blood, and great turgescence of the vessels in the intestines; there was in no case coagulable lymph; there was no change in the liver; the gall-bladder was full of bile of the ordinary appearance; the arterial and venous blood was nearly of the same dark colour, a fact which seems to be connected with the observation of Dr. Davy, of the expired air containing only one-third of the healthy quantity of carbon, two-thirds being retained in the blood.

The total number of cases in the army on this station, from the 21st Dec. 1818 to the 21st Dec. 1819, was 477, of whom 274 were discharged, 203 died. Mr. Assistant Surgeon Whitfield reports, that of 19 gun lascars who fell under his care at Colomba, from 21st to 28th of February, 5 died and 10 recovered, and of 65 inhabitants of Negombo from 23d March to 1st of April, 9 died, 56 recovered. His practice was to bleed, and to give "opium in a solid form with or without calomel." Mr. Staff Surgeon Marshall reports from Kandy of the 1st of August 1819, that of 50 cases which occurred, 40 died. "Calomel," he says, "was given in a number of cases in scruple doses, and in some cases this dose was repeated every hour or every second hour. Tincture of opium was in some cases given freely; stimulants, such as æther, ammonia, spirits, &c. were given in different quan-

ties, and repeated according to circumstances, in almost every case." Mr. Surgeon Parker of the 19th regiment reports, that of 31 seizures in that regiment, 9 died. His practice consisted in very large bleedings, external warmth, and the free use of calomel and opium. The only singularity in the treatment was the administration of ox-gall on the principle of supplying the want of that secretion. It produced no visible effect.

Upon the whole it appears from the different reports, drawn up with great ability by the medical officers in Ceylon, that this disease assumed here a more malignant aspect than on the continent of India, as appears by that form of it, described by Mr. Finlayson, in which either the cause was so violent, or the powers of life so deficient, that they could make no resistance to it, even when fortified and stimulated by the most powerful cordials and medicine. In the ordinary cases also, medical means seemed less efficacious than in India.

The following singular appearances occurred to Mr. Finlayson in two subjects, the one a Caffre, the other a Malay. The former died twenty hours after the first seizure, the complaint baffling the most powerful remedies. In fifteen minutes after he expired, the fingers of the left hand were observed to move, then the muscles of the inside of the same arm were contracted in a convulsive manner, and the like motions were slowly propagated upwards to

the pectoral muscles. The muscles of the calves of the leg contracted in like manner, bundles of their fibres being drawn together in a tremulous knot. The muscles of the inside of the leg and thigh were forcibly contracted in a vermicular manner. The muscles of the face and lower jaw were similarly affected, and finally those of the right arm and right pectoral muscle. These motions increased in extent and activity for ten minutes, after which they gradually declined, and ceased twenty minutes after they began.—The other died fourteen hours after seizure, the most powerful remedies having been administered without effect. About fifteen minutes after he expired, the toes began to move in various directions, and the feet were made to approach each other. Muscular contractions were speedily propagated upwards along the inside of the legs and thighs. The thighs were turned slowly inwards so as to approach each other and again outwards, the whole of the lower extremities moving on the heels as on pivots. These motions proceeded upwards producing a quivering in the muscles. In five minutes the upper extremities began to be similarly affected, the fingers were extended, and often rigidly bent inwards: pronation and supination of the hand were steadily though slowly performed. The same quiverings were observable as in the lower extremities, and extended to the *pectoralis major* muscles and the superior margin of the *latissimus dorsi*. The muscles of the face moved and the

head was observed to shake. The total duration of these appearances was half an hour. By moving or pricking the arms or limbs, these contractions were rendered stronger, and again renewed where they had ceased.

It is remarkable that the abdominal muscles were not affected in either of these subjects. The bodies of both were examined. The appearances in the former were entirely those of the subjects before described, who died after a very short illness, the congestions of blood, which were enormous, being confined to the brain. In the other, though the chief congestion was in the brain, the vessels of the thorax were also gorged with blood, but no determination of it on the intestines. The lungs of the first were heavy and dense, but swam in water.

Mr. Finlayson ascertained the heat of those labouring under this disease, by applying a thermometer to the axilla. He found it varying from $92\frac{1}{2}^{\circ}$ to 97° .

With regard to the practice, the same gentleman states, that small doses of tincture of opium of ten drops repeated, seemed to answer better than large doses. The stress of the cure was laid on twenty or thirty grains of calomel given at first, and repeated in doses of eight or ten grains every second, third or fourth hour. External frictions

gave more disturbance than ease. Blood-letting was practised with the same relief as in the other parts of India. Spirituous cordials, and injections with laudanum or oil of turpentine, are recommended. He says, that he thinks the disease rarely admits of spontaneous cure, but that he has known some instances of it.

We cannot conclude this article without remarking that the medical officers of the British Empire in India have done themselves much honour, by the great ability, zeal and humanity displayed in the preceding communications.

ON
THE CAUSES
OF THE
VACUITY OF THE ARTERIES
AFTER DEATH.

By JAMES CARSON, M.D.

OF LIVERPOOL.

COMMUNICATED BY

SIR JAMES MACGRIGOR.

Read Dec. 7th, 1819.

THE Harveian Doctrine of the circulation of the blood, may, I think, be divided into two parts. The first is the course of the blood; the second the explanation of the causes by which it is moved in that course. The arguments advanced by Dr. Harvey on the first of these points, the course of the blood, must, I think, convince every candid enquirer that the blood is conveyed from the heart by the arteries, and returned to it again by the veins. But the illustrious discoverer has not been so fortunate in the second part of his great undertaking. In maintaining that the projectile power of

being of a different colour from that discharged, the ventricles of the heart propels the blood through the whole of the arterial and venous canals, and, after having discharged this office, opens the auricular chambers by means of the returned blood, he lays claim to effects which are not warranted from the supposed causes, and which are inconsistent with the established laws of hydrostatics; laws by which the blood, as well as every other fluid, must be governed. But this part of the doctrine of Harvey, admitting it to be philosophically correct, must be rejected in its present application as affording no satisfactory solution of the phenomena. The followers of Harvey, adopting as the foundation of their argument his doctrine of a *vis a tergo*, have enlisted the arteries into the aid of the heart, and contend that the blood is circulated by the combined agency of these powers; but the difficulty is not removed by the supposition; it is only shifted to another part of the system, and the phenomena are not better explained.

It has often created surprize that a doctrine so simple in appearance as the circulation of blood, and pointed out so plainly as we now suppose by facts of daily occurrence, should have been reserved for the discovery of modern times. The knowledge of the circulation seems to have been retarded by one remarkable phenomenon. The arteries, which are now known to constitute the channel of the blood for one-half of its course, were uniformly

found to be devoid of that fluid after death. That vessels in which no blood was to be found by the most careful examination after death, should be the constant receptacles of it during life, is a supposition that would scarcely suggest itself to the anatomist; and, if suggested, would soon be rejected from the list of probable conjectures. The arteries were supposed to be the recipients of a vital aerial fluid. One fact indeed of frequent occurrence seemed to be at variance with this belief; and, if the effect of it had not been defeated by an hypothesis, it must, we would suppose, have led to the truth. An artery, when wounded, was constantly observed to discharge blood from the living frame. But the ancient physiologists, unwilling perhaps to degrade the arteries from what they conceived to be their more refined office, and conceiving it impossible, that if these vessels contained blood during life, they could be deprived of it by death, contended that the discharge of blood from a wounded artery was no proof that the vessel contained any blood before it was wounded, but that the injury and pain given by the wound drew blood from other quarters into vessels which contained none before; and that the impetuosity and obstinacy of the discharge arose from the conflict between this foreign intruder and the native aerial spirit. What gave greater plausibility to this supposition was, that the blood shed by the arteries, from the veins, seemed to be not the natural pro-

duct of the body, but the factitious result of this imagined conflict.

The condition of the arteries after death was urged confidently by the opponents of Harvey as an insuperable objection to the doctrine of the circulation, upon its first promulgation; and was unquestionably one of the greatest obstacles found in the path of the discoverer; and, after all, the explanation given by this celebrated man of the powers by the operation of which the arteries are found empty after death, is most unsatisfactory. He says that the left ventricle, in the last struggles of life, continues to propel after it has ceased to receive blood, and that, by these final propulsions, the blood at the time in the arteries is driven into the veins; and he further asserts, in support of this explanation, that the arteries of animals, who have been killed by submersion in cold water or by mephitic air, will be found to contain blood after death as well as the veins. But there can be nothing more evident, than that the heart, by these abortive impulses, could only drive blood through the more remote portions of the arterial system by some impinged medium; and that this medium, which, upon the hypothesis of Dr. Harvey, could only be blood, must still remain in the arteries. But defective as this explanation is, it has the further imperfection of being built upon an hypothesis that is altogether destitute of proof. This

hypothesis is, that the heart continues to propel after it has ceased to receive blood. The heart on the contrary is generally found full of blood after death. The converse, therefore, of what is maintained by Dr. Harvey would appear to be the truth, that the heart retained the capacity of receiving blood, after it had lost the power of discharging it. The statement also by which Dr. Harvey has supported his opinion, has not been confirmed by observation. The arteries of animals which have been killed suddenly by submersion in cold water, or by any of the ways enumerated by Dr. Harvey, have been found equally empty of blood with those of animals killed by lingering disease. Into such a labyrinth of error and evasion will men of the most powerful minds be led when they attempt to shape nature to a conformity with their opinions.

No new light has been thrown upon this subject by the followers of Harvey ; and in general it may be observed that after the lapse of two centuries, and though a thousand volumes have been written, and thousands of animals slaughtered to elucidate the subject, the doctrine of the circulation has descended to our times nearly in the same state in which it came from the hands of the original discoverer.

Mr. George Ker, an ingenious and learned surgeon in Aberdeen, struck with the defectiveness

and inapplicability of the explanation given by Dr. Harvey and his followers of this remarkable phenomenon, as well as of many others, has in a late publication boldly denied the doctrine of the circulation of the blood altogether, and become the acute, strenuous, and most confident advocate of the opinions of the ancient physiologists respecting the condition of the blood in the living system, and the uses of the arteries.

All the objections urged by Mr. Ker against the circulation had been stated by myself as objections, not against the doctrine of the circulation itself, which I believe to be founded on a basis never to be shaken, but against the causes assigned for the accomplishment of that effect, at least two years before the appearance of Mr. Ker's work, but unquestionably without the knowledge of that gentleman. The causes which I have ventured to assign to the motion of the blood, will, in process of time, I trust, be found to have a real existence in nature, to be adequate to the effects assigned to them, to have been fitly applied, to afford a plain and satisfactory explication of the various phenomena, to answer fully all Mr. Ker's objections, and, in a word, to vindicate a theory, which does so much honor to our country, from all future opposition.

The objection principally dwelt upon by Mr. Ker, the emptiness of the arteries after death, did

not pass unnoticed, as may be seen on reference to the enquiry into the causes of the motion of the blood ; but as I had not then had an opportunity of submitting my opinions to the test of experiment, I did not state them with that confidence which I even then felt in their truth. I have lately had that opportunity, and I now propose to state the result.

The chief, if not the whole, of the movements of the animal machine seem to be the effect of two powers acting either conjunctly or separately. These are elasticity and irritability. The elasticity of the parts which possess this property is inherent in the structure, and is independent of life. Irritability, which is the property of the muscular substance, is the concomitant of life, and ceases with it. The movements, which are the usual result of a combination of those powers, will not wholly cease at death. The elasticity will still continue to operate ; and the result will be different, either from that which would be produced by their combined agency, or from that which would arise from their synchronous destruction.

The motion of the blood seems to be the result of the contractions arising from the irritability of the heart and arteries, and of the resilience arising from the elasticity of the arteries and of the lungs. One class only of these powers is destroyed by death. The resilience of the lungs and of the

coats of the arteries possess then an uncontrouled operation.

The resilience of the lungs removes a part of the pressure of the atmosphere from the internal surface of the chest, and perhaps from the internal surface of the vessels by which they are penetrated. To restore to the parts within the chest an equality of pressure with that of the substances without it, the adjoining liquid and less fixed parts of the body will be pressed through every channel that offers into the chest. What is called a vacuum will in effect be made in the chest by the elasticity of the lungs. There will therefore be a draining from all parts of the body towards the chest, to fill up this vacuum. As thus the causes which return the blood to the heart continue to operate, after the heart, the great engine by which it is discharged, has terminated its labours, a greater quantity of blood will be necessarily collected in the neighbourhood of the heart after death, than existed there before it.

Various circumstances may intervene to fix the channels in which the blood will flow in its course towards the heart after death. The arteries are powerfully elastic, and when their coats are relieved from the distending force of the heart, become of a diminished calibre. Valves stationed at the roots of the arteries prevent the return of blood from these vessels into the chest. After the small

part of the aortic system intervening between the heart and the confines of the chest shall have been, as it usually is found to be, filled with blood, the blood in the rest of this system will sustain no diminution of pressure on the side of the heart.

No obstacle exists in the way of the blood in its course to the chest through the veins. No valves are stationed at the roots of these vessels, and the blood finds an unobstructed course from the roots of the cava into the auricles, from that possibly into the right ventricle and into the pulmonary arteries, and thence into the pulmonary veins. The heart, particularly the auricles and the large venous trunks, the coats of which being inelastic and easily dilatable, being all placed within what may be called the vacuum of the chest, will be distended to their utmost capacity. The additional blood requisite for this purpose can be drawn only from the veins. The place of the blood taken from one part of the venous system will be supplied by that from another. The termination of this process will be the emptying of the arteries into the veins.

If the preceding argument be correct and founded upon true principles, it would follow that, were the elastic powers employed in the motion of the blood disengaged before the muscular powers had ceased to act, or synchronously with that event, a distribution of the blood would

be found to exist after death different from that which is now usually observed. The blood would not be found so extraordinarily accumulated in the right auricle, and in all the veins belonging to the system of the cava within the chest, and at the approaches to it; and the arteries and capillary vessels would contain the proportion which upon the supposition of the Harveian theory must have flowed in them before death. I have not been able to devise any method of annihilating before death the elastic influence of the arteries, and therefore some allowance must be made in the phenomena which are to be brought into view for that cause; but I have been successful in removing from all influence after death the elastic power of the lungs, by far the most efficient, by the manner in which the animals were killed in the following experiments. Death was in these cases effected by inducing a previous collapse of the lungs, which was done by making openings into the chest of the living animal, and exposing the external surface of the lungs to the free access of the air.

In the first experiment made with this intention, an opening was made about an inch in length between a pair of the ribs on each side. I expected that sudden death would be the effect of these openings; but in this respect I was disappointed, and at first not a little perplexed. This disappointment I experienced particularly in the case of a large dog. This animal, as I supposed, after

the collapse of the lungs, by pressing up the diaphragm by means of the abdominal muscles as far as possible, and then by a rapid and forcible contraction of the intercostal muscles, accompanied by a rapid and forcible contraction of the diaphragm, was enabled to rarefy the air contained between the external surface of the lungs and the chest to such a degree as to occasion a partial dilatation of the lungs, and an imperfect expansion of the heart. Thus life was painfully prolonged for nearly twenty minutes. The sufferings sustained by this animal for so long a period prevented a repetition of the experiment on any other animal in the same manner. The result was in other respects satisfactory. Though the death was tedious, it was ultimately produced by the collapse of the lungs. I had previously performed the same experiment upon a rabbit and a cat. In these the death, though not sudden, was neither so tedious, nor to appearance so distressing as in the case of the dog.

The same appearances were, on dissection, exhibited by all. The muscles were remarkably red; and, when an incision was made into them, they poured out blood. The membranous parts exhibited the blood-vessels as if they had been fully and nicely injected; forming anastomoses which appeared like a netting made of red threads. I was particularly struck with the coats of the intestines; instead of exhibiting the usual pale smooth

surface without the vestige almost of a single blood-vessel, they appeared to be composed of a red colored netting, the meshes of which varied greatly both in dimension and in form. The liver was like red morocco. The flesh of the rabbit, which is usually white, was in this case of a reddish color, and all the dissected parts became wet with effused blood. The heart contained little blood. When the chest was opened, and the large vessels it contains were divided, a small quantity of blood only was effused, not much more indeed than from the other parts of the body. The aorta and large arteries, in all the instances, were pale externally, while the accompanying veins were of a blue color. A part of the descending aorta, above the bifurcation of the iliacs, after its extremities had been secured by ligatures, was cut out, and was found to contain a small cylinder of blood generally coagulated. So it appears that the white color of the arteries did not arise from this being empty of blood, but from the want of transparency of their coats. With respect to the vessels, which the stomach, the intestines, and the membranous parts exhibited in so beautiful a manner, I do not pretend to say what part of them may have been arteries. Supposing, however, that these carcasses exhibited the distribution of the blood as it really existed in life, it is very evident that the blood, not only of the larger arteries, but of the smaller vessels, whether they be arteries or veins, must, in conse-

quence of death produced in the usual way, be emptied into the large veins. I think it probable, however, that what are called the capillary vessels, may, in consequence of this mode of killing the animal, be found to contain more blood than the share that belonged to them during life; for the elasticity of the coats of the arteries, the effect of which, as I before stated, I had not been able to devise any plan of counteracting, by contracting the bore of these vessels, would propel a part of the blood that was flowing in them at the moment of death into the vessels, the coats of which were inelastic and dilatable.

For the purpose of comparing the appearances of two animals of the same kind, killed in different ways, two rabbits were killed on the 20th of September 1819, one of them by causing the lungs to collapse before death, the other after a different manner. In the case of the first of these rabbits, the belly was opened freely from the scrobiculus cordis nearly to the pelvis, and the lower surface of the diaphragm exposed to view. An opening, fit to admit my two fingers, was made through the muscular part of the diaphragm on each side. The sound of air rushing through the orifices, announced the collapse of the lungs. As the animal possessed no power of contracting the openings made in the diaphragm; as its struggles would probably tend to widen them still more; and as therefore the capacity of dilating the lungs, even

in the smallest degree, no longer remained, the animal instantly died. The appearances exhibited by the dissection of this rabbit, were precisely similar to those already described of the bodies of animals killed by the previous collapse of the lungs. The vessels, particularly of the intestines, stomach and mesentery, were very distinct and full of blood, forming frequent anastomoses with each other, in the way already described. The flesh was reddish, and when cut into, bled. The heart and vessels about it contained only a moderate quantity of blood; for scarcely any blood was found, after the division of the vessels, to have been effused into the shell of the chest. The other rabbit was killed by thrusting a sharp instrument between the vertebræ of the neck. It died instantly, and was immediately opened. Scarcely was the vestige of a blood-vessel to be observed on the surface of the intestines or stomach, which had a pale appearance, excepting where they were tinged by the colour of their contents. The membranes scarcely exhibited any traces of vascularity. The flesh was white, and when cut into, appeared to be dry, discharging at some parts a drop or two of blood. The liver was of a dusky brown colour. The trunks of the veins were swollen and rounded; whereas in the other rabbit they appeared flat, and to contain a thin layer of blood. A considerable quantity of blood was found in the shell of the chest, after it had been opened, and the large vessels it contains divided.

A few days after, a sheep was killed in the same manner as the first of the above-mentioned rabbits. When the openings were made through the diaphragm, the sound of air rushing into the chest, announced still more plainly the fatal collapse of the lungs, and the last expiration. The animal, after making a few heavings with the chest, became lifeless. Several other sheep had been killed at the same place at that time, and there was an opportunity of comparing the carcase of this animal with those of the others. Scarcely any traces of the smaller vessels were observable in the stomach, intestines, peritoneum or mesentery of the other sheep, while in the same parts of this animal they appeared in great abundance, and as injected with red wax. The appearance was so remarkable as to strike the butchers, and the persons whose attention I directed to it, with surprise. The colour of the fat was browner than usual. The muscles of this animal being at all times red, did not exhibit so marked a difference as in the case of the rabbits, but when cut into they discharged blood. The larger arteries, where I had an opportunity of seeing them, contained a small cylinder of coagulated blood. The flat and tape-like appearance of the large veins, which I had observed in the rabbit killed in the same manner, was in this case very remarkable.

The results of these experiments I think fully

warrant the conclusion, that the difference of the distribution of the blood after death from that in which, according to the Harveian theory, it must exist in the living system, arises chiefly from the elastic power of the lungs ; and that the emptiness of the arteries and of the smaller vessels observed after death, admits of a satisfactory explanation from the supposed operation of this cause, combined with that of the elasticity of the arterial canals.

Before I conclude this paper, I am anxious to express my hope that some benefit may result to anatomy from the examination of animals killed by the collapse of the lungs ; in particular a better chance seems to be promised by it of tracing the vascular system to its various terminations. According to the Harveian doctrine, the blood must flow from the minute and ultimate branches of the arteries into the corresponding branches of the veins. But the knowledge of the manner in which the vessels form the communication necessary for this purpose, is still a desideratum in medical science ; and, as in all the ordinary modes of death, these vessels are always deprived of their contents ; and, as in these circumstances, the knife of the anatomist and the microscope, though directed by all the colourings which the art of injecting can supply, have been found incapable of bringing this union into view, it was likely to have remained so. But the exa-

mination of animals in which the smallest vessels contain at least their full proportion of the red fluid that filled them before death, seems to hold forth the hope of some more satisfactory knowledge being attainable in this dark and mysterious part of physiology.

Liverpool,
October 22, 1819.

HISTORY

SECOND CÆSAREAN OPERATION,

PERFORMED ON
THE PATIENT, WHOSE CASE IS RELATED IN THE NINTH
VOLUME OF THE SOCIETY'S TRANSACTIONS.

By J. J. LOCHER, M.D.
OF ZURICH.

COMMUNICATED BY
J. A. ALBERS, M.D.
OF BREMEN.

[Dr. LOCHER's further history of the patient, whose life he preserved, with that of her child, by the Cæsarean operation, was transmitted to me, in the German language, by my friend Dr. Albers. I have translated it into English for the Society; and have added, as an appendix, a short account of three other cases, in which this operation has recently been performed in Germany with success.—W. LAWRENCE.]

Read June 20th, 1820.

SOON after I had sent to the Medical and Chirurgical Society the case of Cæsarean operation, which is printed in the Ninth Volume of their Transactions, the small ulcerated surface, which

had hitherto continued to discharge, finally closed under the use of astringent applications. The patient followed all her ordinary occupations as before the operation. The child was remarkably healthy and strong, and could stand alone, holding by a chair, at the age of nine months.

Towards the end of November in the same year (1817) the patient's husband came to me in a great hurry, with the account that his wife's belly had burst, and that something was hanging out of the opening, which he did not know what to make of. I was much surprised at the news; and, not being able to imagine what had happened, thought it almost ridiculous; however, I immediately dispatched my assistant to ascertain what had occurred, and to send me information, if it should be necessary. He soon sent back to require my attendance. I found that my patient had taken on the preceding evening, for supper, a large quantity of rice boiled in milk, and that she had drunk some acid liquor in the morning; fermentation had ensued, causing disorder of the stomach and vomiting. In the violent efforts accompanying this act, the cicatrix of the wound in the linea alba burst to the extent of about two lines, and a protrusion of omentum followed, which soon reached the size of a moderate fist. I found it lying warm and slightly bleeding on the integuments of the abdomen; the vomiting still continuing with acute pain.

In considering what should be done under these very urgent circumstances, three different proceedings presented themselves, *viz.* simply to replace the omentum ; to enlarge the wound for that purpose ; or to place a ligature in it, and cut off the protruded portion. The first measure seemed very difficult, on account of the smallness of the opening in comparison with the bulk of the protruded part. Dilatation was objectionable from the risk of subsequent protrusion of intestine ; and the third plan was unsuitable, because it might be expected to leave a fistulous opening, through which the abdominal contents would probably protrude on any exertion. I determined therefore to effect the replacement without enlarging the wound ; but this could only be accomplished by unfolding the omentum, and pushing in portion after portion with the scoop end of a silver director ; the whole was however returned after a very difficult and tedious process. All symptoms now ceased, but a portion of intestine presented itself almost immediately, in place of the omentum. I easily returned this, and closed the wound by a suture supported by charpie and sticking plaster. The patient was then treated as after the operation of strangulated hernia, with clysters and cooling aperients. Every thing went on well ; the edges of the wound united, but a small superficial ulcer remained, and continued open in spite of every effort to close it.

Hitherto, although the menses had not appeared

for three or four months, it was uncertain whether pregnancy had again taken place ; but, in the middle of January, 1818, this was no longer doubtful. The motions of the child were now very lively, and the tumour projected over the pubes. Unless the child were very small, which I did not expect, a repetition of the first operation seemed too likely to prove the only ultimate resource. The abdomen had the same unfavourable configuration as in the first pregnancy, and the ascertained narrowness of the pelvis precluded all expectation of the uterus sinking into that cavity. At all events the patient must look forwards to a very serious risk, and the accoucheur to an arduous task. My principal apprehension was, that as the abdomen swelled by the enlargement of the uterus, the integuments would burst at the cicatrix, and a large protrusion of the viscera follow. I endeavoured to obviate this occurrence by the support of a broad laced belt.

No material change took place after this period, except that the ulcer became larger, reaching at last the diameter of three inches. Broad strong stripes of adhesive plaster were applied daily, to support the integuments ; the ulcer being first covered with dry charpie.

The period of pregnancy was passed in all respects favourably ; the patient retained her usual good spirits and cheerfulness, and whenever she

spoke of her approaching confinement, always expressed her wish that no attempts should be made with the forceps or other instruments, but that the operation should be immediately resorted to, as the safest and surest mode of relief. The abdomen continued to increase, completely overhanging the ossa pubis, and the motions of the child were so strong as not only to be felt by the hand, but to be distinctly visible.

She had reckoned on the end of May as the term of her pregnancy, and slight spasms were felt on the 22nd of the month ; but as she thought these would go off, antispasmodics were ordered. They recurred on the 23d, and, as they continued longer occupying the region of the pubes, they seemed more like real pains. Examination by the vagina however gave no indication of any thing contained in the uterus, nor could even the orifice of that organ be felt. These spasms lasted the whole day, and the child was felt in very strong motion ; about seven in the evening she complained all at once of a very acute pain, and felt at the same moment some fluid pass off through the external organs. This discharge, which was pure blood in considerable quantity, and which immediately stopped the supposed pains, ceased suddenly. Nothing was discovered on examining again *per vaginam* ; on the other hand, below the navel, in the line of the old wound, and under the ulcer, there appeared a circumscribed firm swelling, obviously

caused by the child's head, of which the sutures were plainly discernible. I naturally concluded that the uterus had burst, so as to allow the child to escape; and the hæmorrhage was thus easily explained.

As no urgent symptoms were present, nothing further was attempted; but a consultation with two physicians was appointed for ten in the evening. The spasms had recurred in the interval; but were now felt more in the lumbar regions than in that of the pubis, and were very troublesome to the patient. The repetition of the Cæsarean operation was the only measure that could be proposed under the circumstances of the case; the patient, so far from objecting, mentioned with the greatest calmness and resolution, that she had expected, from the commencement of her pregnancy, no other delivery than by this process, and that she resigned herself entirely to the disposal of her medical advisers.

The necessary preparations having been made, and some neighbouring physicians invited to attend, we proceeded to the operation about twelve at night.

There was now no choice of place for the incision; the round swelling caused by the child's head, pointed out the spot. The position of the patient having been arranged as on the former oc-

casion, and an incision of six inches in length made through the skin and adipous membrane, a quantity of coagulated blood appeared, affording a clear proof that the uterus had been ruptured. When this had been removed, the membranes presented themselves, exhibiting a bluish hue from the contained fluid; they were opened, and the head of the child immediately appeared. The navel-string passed round the neck, and the opening of the uterus was also contracted upon it. The funis was extricated, and a full-sized well-grown child appeared, but without giving any signs of life, except that the hands and feet were directed upwards, the mouth and lower jaw closed. The placenta came away during the attempts to re-animate the child. The uterus, which could be seen and felt, contracted; a small portion only of intestine appeared; and the bleeding was very inconsiderable; so that we could proceed immediately to the dressing, which consisted of four sutures, charpie, and adhesive straps.

All attempts to re-animate the child proved fruitless, to the great sorrow of the mother, who constantly exclaimed, "this child does not cry like the first," and the disappointment of all present. It weighed fully seven pounds and a half.

The patient possessed her full powers; she was cheerful and happy to find herself relieved from

her burthen. After being placed in bed, she took some soup, and subsequently an analeptic draught. She could not sleep much, but was tranquil. At five in the morning of the following day (24th May) the spasms returned, extending over the whole abdomen, and upwards along the spine to the left shoulder, so as to cause a constriction of the chest. The head was affected; the pulse contracted, irregular, and quick; the thirst considerable; the abdomen inflated, hard, and painful; the lochia did not appear; the wound was dry; and the patient felt uneasy and alarmed. Anodynes were employed, both internally and by friction. Later in the day the symptoms all increased; the tongue however continuing clean and moist; yet hiccough and efforts to vomit came on. In addition to the anodynes, gum arabic, and hyoscyamus, with emollient clysters, were ordered. As the symptoms continued to increase towards night, the clysters had no effect, and actual vomiting took place whenever any thing was received into the stomach. An enema, containing Glauber's salt, soap, and honey, was ordered at 10 o'clock, and sinapisms were applied to the feet. In the night a discharge took place from the bowels, and the whole body became moistened with perspiration; a thin serous discharge flowed copiously from the wound; the urine passed naturally, but the lochia did not appear; hiccough and vomiting continued.

Towards the morning of the 25th, the patient slept a little, and became more composed ; the pain diminished ; the swelling and tension of the abdomen abated, and two motions, which took place without the use of clysters, gave great relief. There was great scalding in making water ; the pulse continued quick, but fuller and not so tense as before ; the thirst had abated, and the head was quite clear. The linen of the dressings being wetted throughout by the serous discharge, was renewed. Still the lochia did not appear ; hiccough and vomiting were greater on taking food ; the composing medicines were continued. A copious lochial discharge in the evening lessened all the symptoms ; the urine flowed abundantly without pain ; the same medicines were continued, and sinapisms again applied.

26th. The patient had slept well ; the pain in the abdomen and chest was nearly gone ; hiccough and vomiting recurred seldom ; the appetite increases, the abdomen has subsided, and the spirits are recovered.

27th. Another good night ; the pain almost entirely gone. The abdomen is soft, and only affected at intervals with slight colicky pains. The urine flows easily ; the bowels are open without clysters ; the tongue moist ; the pulse still quick, but regular. The dressings were renewed, and the internal treatment continued.

28th. The patient is nearly as yesterday. Towards the afternoon a kind of erysipelas, like a zona, appeared on the abdomen, with acute burning pain or pressure. The bowels were not open; a clyster was therefore ordered with sinapisms. The dressings were now completely removed. The sutures continued firm, but the wounds made by them were freely suppurating. The wound was again dressed with charpie and broad adhesive straps, supported by compresses and bandage.

29th. Pain lessened; sleep and appetite good; little thirst. The erysipelatous eruption is not so red, hot, or burning; the abdomen is soft; but the patient is troubled by a constant flow of saliva, although no other scorbutic symptoms are present. The lochia, urine, and stools, are natural; the dressing is renewed; the ligatures still hold the edges of the wound together; the same treatment is continued.

30th. The flow of saliva is much increased, the lochia and the urine diminished. The clyster of yesterday did not operate, but the abdomen is soft and free from pain. The erysipelas extends towards the breast, but without increase of pain. Clysters and sinapisms are repeated with the other treatment. The discharge from the wound was less. In the evening, the patient was much depressed, and complained particularly of the increasing salivation, which made the mouth sore,

yet was accompanied with a dry burning heat in the throat and stomach, aggravated whenever food or drink was swallowed. Disturbance of the biliary secretion was at the same time manifested by the yellow tongue, bitter tastes, and frequent irritation to vomit, which however did not proceed to actual vomiting. The pulse continued regular, the fever inconsiderable, the abdomen more inflated, but soft and free from pain ; several aperient clysters had been administered without effect. A mild opening mixture with manna was ordered. Late in the evening the bowels were opened with great relief. The next day all the symptoms were lessened, excepting the erysipelas, which now reached the neck, loins, and sacrum, but had begun to desquamate on the abdomen, and lower part of the chest. The bowels were freely open, the abdomen was reduced in size, the discharge from the wound increased, and was accompanied with portions of coagulated blood. Aperients and anodynes were employed alternately.

On the 1st of June there was no change.

2nd. The sleep has been disturbed, with heat and anxiety ; the fever is increased, but without much thirst. The erysipelas spreads, occupying at present the whole chin, and the back down to the anus, and rendering the lying position extremely painful. Several loose stools were procured ; the flow of saliva abated. The tongue is now clean ;

the appetite a little recovered. The wound was clean, and secreted good pus.

There was no material change on the 3rd.

4. The patient is again depressed. In the throat and œsophagus, as well as in the skin, she has so intolerable a sense of heat, that she cannot lie still ; yet the pulse indicates no violent fever ; the tongue is clean and moist ; the appetite deficient ; the stools and urine natural. The erysipelas extends, covering now half the thighs. The back is red, swollen, and burning. The uneasy state of the patient can be easily imagined, with erysipelas over the whole back, and such a wound in the abdomen. Cooling medicines and drinks were continued. The sutures all came away ; the wound had united below, but the edges were still far apart above, particularly in the situation of the old ulcer. The lochia have nearly ceased ; the abdomen is soft and free from pain.

5th and 6th. The erysipelas reached the legs, and extended towards the feet with considerable œdema. The patient was very weak ; strengthening medicines were ordered, together with mild aperients.

7th. The patient is still in a very alarming state, with increasing weakness. The erysipelas reaches the toes ; pustules are observed on the sides of the

back ; and a diarrhoea appears. The most powerfully strengthening means were employed.

8th. Considerable improvement. The diarrhoea has ceased ; the dry burning heat goes off ; she slept quietly some hours. The same treatment is continued.

There was no change on the 9th and 10th. The wound goes on favourably, being quite clean, and suppurating healthily ; it begins to cicatrize at some points.

On the 11th the erysipelas, which for some days had been confined to the lower limbs, again attacked the head, appearing in the left ear and cheek. All the external symptoms in this case have appeared first on the left side, and affected it more severely than the right. No change in the treatment.

12th, 13th, and 14th. The erysipelas passes from the left towards the right side ; and the skin is desquamating.

15th and 16th. Desquamation begins in the face, but the erysipelatous affection is aggravated in the feet, more painful, and with increased tumefaction. The appetite again fails, although the tongue is clean. There are two or three motions daily ; the lochia have ceased. No milk has appeared in the

breasts from the beginning. The abdomen exhibits a degree of tympanitic distension, for which an antifatulent tea was ordered. The wound is clean, and dressed with broad decussating straps to keep the edges together.

17th—19th. Gradual improvement. The swelling has disappeared from the face, and that of the feet diminishes. The distension of the abdomen is lessened. The discharges from the bowels and urine are natural; but the appetite deficient. The treatment is the same.

The case proceeded in nearly the same way to the 24th. The appetite improved; the spirits recovered. The wound heals fast below; but the ulcer remains above as before.

On the 25th the left cheek swelled, and the left fore-arm became cedematous without any obvious external cause. Emollient fomentations removed the former affection, and the latter disappeared on the occurrence of perspiration. The decoction of bark was continued.

We found the whole dressings completely wetted, as if with clear water, without any odour, on the 26th, while nothing appeared in the wound to explain whence the fluid had proceeded. As no unfavourable symptoms appeared, but, on the contrary, the appetite was improved with desire for

wine, which was immediately gratified, no change was made in the dressing or treatment. The watery fluid flowed so abundantly, that the thickest compresses and bandages were completely soaked in two or three hours, and required changing. The patient felt altogether relieved, and was in all respects going on well.

On the 28th, in changing the dressings, we perceived the source of the fluid. It was the spot where the protrusion of omentum had occurred; it seemed to have again given way, and thus to allow issue to a large proportion of the abdominal serous exhalation. Thus a fistulous ulcer is formed. Compresses and adhesive straps are employed to prevent any prolapsus; scarification of the edges, and a suture, will be necessary in the sequel, when the rest of the wound is healed. The daily increase of strength leads us to anticipate this event with confidence.

On the 29th a small portion of intestine appeared at the opening just mentioned, and executed its motions in the usual way, so that they could be easily observed. The watery discharge was less, but the patient more depressed. In dressing the wound, the necessary care was taken to prevent further protrusion. The wound contracts below, and looks perfectly healthy.

Thus the patient went on to the 3rd of July;

when, at the opening into the cavity, points of union appeared between the opposite sides, which led us to expect that cicatrization would take place without any further operation. The patient is cheerful, has good appetite, and sleeps well with the assistance of opium in small doses.

The patient again lost her appetite; yet the wound went on healing, and the watery discharge was so much lessened, that the cloths were only changed twice a day. The stools and urine were natural, the abdomen ~~not~~ enlarged, and there were no bad symptoms.

In the afternoon of the 7th, acute pain came on in the stomach and left side of the belly, followed by violent vomiting of a greyish black watery fluid. There was great thirst, with moist tongue, uniform warmth of the skin without dryness; the pulse was weak, and the patient very irritable. Anodynes were ordered in addition to the other treatment; and anodyne frictions were also employed. The night passed tolerably quietly; the tension of the abdomen did not increase; motions took place and gave ease.

In the evening of the following day, the symptoms increased, and the treatment was continued; the vomiting ceased in the night, and the patient felt rather better. Towards seven in the morning

she began suddenly to complain of nausea and great weakness ; and, in spite of the means that could be immediately employed to support her, died tranquilly in about a quarter of an hour.

The body was examined at three in the afternoon of the following day. Much fluid had flowed out of the mouth, and the abdomen was not distended. The wound had cicatrized, except the point which had been previously torn ; this was much reduced in size, and covered by a membrane, so that no portion of intestine or omentum was visible. The whole alimentary canal, and particularly the stomach and cæcum, were violently inflamed with some gangrenous spots. It should seem that when the erysipelatous inflammation had disappeared from the surface of the body, it had commenced in a slow manner to attack the stomach and intestines, causing general weakness and death.

The liver and the other viscera were sound. The uterus was contracted to a small size, and exhibited on its anterior surface an opening about the size of an almond, with a rounded callous edge. This, I conceive, had remained from the first operation, and had allowed the escape of the child in the second labour. In colour, texture, and all other points, the uterus was quite natural. Below and near it was a membranous bag containing pus.

The ovaries were large, but not indurated. The bladder was in a healthy state; the rectum inflamed, like the rest of the intestines.

The pelvis was removed together with the thigh-bones; its configuration explains the nature of the case, and the obstacles which prevented the descent of the child into its cavity. These circumstances are sufficiently illustrated by the annexed representation (See Plate IV.); so that, without describing the particular bones, I shall merely point out the most remarkable deviations from the natural state.

The ossa pubis, which should be placed on the same level with the promontory of the sacrum, are found perpendicularly under it; so that the child necessarily extended the abdominal integuments, by its own weight, into a pendulous bag overhanging the thighs. For the same reason nothing could be felt of the child by examination per vaginam. The sacrum, instead of closing the pelvis behind, by a semicircular curve, which forms a kind of conductor for the child in parturition, stretches nearly horizontally backwards. The form of the os coccygis may have depended on the circumstance that this female did not go alone till eight years old; having previously either preserved the sitting position, or contrived a kind of awkward motion upon the nates.

The ilia, the spine, and the thigh-bones, bear the strongest marks of rachitis.

The shortness of the thighs in proportion to their size, and the shortness and curvature of the legs, occasioned this patient to appear extremely short when standing, although she seemed a well-sized person in the sitting attitude.

APPENDIX.

*Case of Cæsarean Operation performed at Minden,
mentioned in the Society's Transactions, Vol. IX.,
page 12.*

ON the 16th of March, the midwife, Breyen, came to me at one o'clock in the morning, to inform me that the wife of the tailor, Wolffangel, was at the end of her pregnancy, and could not be delivered in the ordinary way, inasmuch as a complete deformity of her pelvic bones had taken place in consequence of gouty attacks during her last lying-in two years ago, since which time she had been almost constantly in bed, and unable to walk without assistance. I hastened to the house, and found the woman in the most violent pain, earnestly intreating that the operation, which she had long looked forwards to as a necessary measure, might be immediately performed, and *her belly be cut open* to relieve her from her terrible agony. The examination proved that the whole pelvis was in reality thoroughly deformed, and that no relief could be afforded except by the Cæsarean operation.

Having made all the necessary preparations, I called on the medical assessor Diedrichs, to request his assistance in the operation ; and we went together to the patient at half past seven o'clock. The previous arrangements occupied us until eight o'clock ; for, in so important an undertaking, every thing should be prepared before-hand, so that in the moment of execution, not the smallest trifle should be wanting, and provision should be made for every possible occurrence. Without entering into a detailed description of the operation, I shall merely observe, that I had reasons for avoiding the usual oblique incision in the side, and for preferring a straight one through the linea alba ; to which preference I ascribe in part the successful result of the operation. While I was performing it, the patient was perfectly tranquil, and conversed with me, without uttering any sound indicative of pain ; she even assured me afterwards, that it was less painful than a natural delivery.

The child had been long dead, otherwise it would certainly have been preserved alive. The operation, dressing, and bandaging, occupied scarcely half an hour. Five weeks are just elapsed this day ; the patient finds herself quite well, indeed better than she has been for two years, since a hectic cough, with considerable expectoration, which at the commencement of the operation threatened to be very troublesome, has been removed by suitable treatment, and the wound is

healed, with the exception of a spot about the size of a groschen.

While I praise the patient, Wolffangel, for her cool and collected behaviour during the operation, and her punctual execution of every medical direction, I must not omit to mention the liberal support which our benevolent citizens afforded to the family of an industrious artisan impoverished by unfortunate times ; -and to state my opinion, that the success of the operation was greatly promoted by the wholesome and nutritious food sent to the patient from many quarters. I must also return my sincerest thanks to the medical assessor Diedrichs, both for his assistance in the operation, and for his careful and scientific treatment of the wound, which he has taken care of to the present time.

N. MEYER,

Doctor of Medicine and of Surgery,
Prov. Stadt-und Land Physicus.

Minden, 24 April, 1817.

Account of Two Cases of Cæsarean Operation, abridged from Dr. A. E. Von Siebold's Journal für Geburtshülfe, Frauenzimmer—und Kinderkrankheiten, Vol. III., Part 1. Frankfort on the Main, 1819.

I. HISTORY of a Cæsarean operation, by which the lives of the mother and child were saved, by Dr. Ferdinand Spitzbarth, physician and accoucheur, of Schewln, in the county of Mark.

I was sent for on the 15th of July of this year to the wife of Christian Möller, a shop-keeper, residing near the Wells of this place. She was in labour with her first child. She was 32 years old, completely deformed in person by rickets in her early age, and since by severe attacks of gout, and under four feet in height. The pains had commenced at one in the morning.

The abdomen hung so much over the pelvis, that, even she was lying horizontally, it touched the thighs for a hand's breadth and a half below the inguinal regions. The entrance of the vagina was so narrow that two fingers could scarcely be introduced; the bony arch was rather wider below, where it was about equal to three fingers' breadths. A large exostosis from the sacrum filled

up so much of the pelvis, that there was not more than a space of two fingers' breadths in any part of the superior aperture of the pelvis. Neither the os uteri nor any part of the child could be felt.

I performed the operation at six in the morning of the 16th, assisted by Dr. Droste of Gevelsbery, Dr. A. Droste of Osnabrück, and, Mr. Jellinghaus of Voerde, surgeon. An incision of seven inches was carried, first through the integuments, and then through the tendinous parietes, in the course of the linea alba. An ordinary tea-cupfull of watery fluid escaped when the abdomen was opened. I made an incision of an inch in the uterus, and enlarged it to the same extent with the external wound ; then lacerated the membranes, and quickly drew out the child, which opened its large blue eyes, and announced its safety by loud crying. After tying the navel string, and giving the child to the nurse, I separated the placenta ; the uterus contracted immediately, and the edges of the wound in it came together with the loss of very little blood. Five sutures were employed to unite the integuments ; broad adhesive straps and bandages completed the dressing. Troublesome vomiting followed the operation, and afterwards symptoms of great debility, cold sweat, tremulous pulse that could scarcely be counted, and deathly paleness of the lips and face. Her powers were recruited by small quantities of wine at short intervals, and washing with warm wine.

The finger introduced into the vagina was smeared with blood; the os uteri could be felt on the right side, between the exostosis and the ilium.

Alarming symptoms continued till the night of the 17th at twelve, when some refreshing sleep was procured. The painful state of the abdomen, which was at its height on the 17th and 18th, was much lessened on the 19th; having been relieved by the operation of clysters.

When the adhesive straps were removed on the 22nd, a considerable portion of the wound had closed, and the rest exhibited healthy granulations. The lochia passed naturally by the vagina. The case continued to proceed favourably, and the cicatrix was perfect on the 1st of August, so that an abdominal bandage only was continued. An œdematous swelling, which commenced in the left foot on the 27th of July, increased so as to occupy the whole lower limb; and then affected the other side equally. This went off under appropriate treatment, and the patient was able to walk about her chamber in the beginning of September, with a firm cicatrix, a little elevated and thin at one point. In the beginning of October, she had recovered her strength completely, so as to execute all her usual domestic duties, and to enjoy the satisfaction of attending to her very well-formed and healthy child.

II. Two remarkable Cæsarean operations performed on a woman still living at Nimes in Bohemia, by J. Lorinser, practitioner of surgery and midwifery.

I was called to Barbara Gröger, a poor woman of Nimes, who worked at weaving, on the 26th of August, 1802; and found a person, 23 years old, of very weakly constitution, in labour with her first child. She had suffered much in her childhood from the English disease [rickets]; and the inability to support herself erect produced by this cause, had obliged her for a long time to crawl about on her hands and feet. At the age of six, the complaint ceased, and she had continued from that time to enjoy good health. Labour had commenced in the morning of the 26th, and some water had passed off by the vagina.

I could feel the dilated os uteri and the child's head; but the space between the symphysis pubis and sacrum was reduced to an elongated aperture, through which only one finger could be passed; the ossa ischii were pressed inwards, so as to have an interval of one inch and a half; the arch of the pubis was contracted; and the sacrum and coccyx had a strong projection inwards. The patient readily consented to the operation, which I represented to her as the only means of saving her life. She had a composing draught, and an emollient clyster;

and got some hours of refreshing sleep in the night.

I proceeded to the operation on the following morning, assisted by Dr. Bernt, now professor of state-medicine (Staats-arzneikunde) at Vienna, and by Messrs. Gürth of Gabel, and Krauss of Wartenberg, surgeons. The patient was prepared by the evacuation of the bladder and rectum, and refreshed by a glass of Tokay wine, with a few drops of tinct. opii. An opening of nine inches long was made through the abdominal parietes in the course of the linea alba, an incision through the body of the uterus, and a healthy living child immediately extracted by one of my assistants; the placenta and membranes immediately followed. A quick and powerful contraction of the uterus prevented any injurious hæmorrhage; and in a short time all bleeding had ceased. The wound was united by adhesive straps and suitable bandage. The patient, who had borne the whole operation with perfect composure, not uttering a single complaint, was in truth more agitated afterwards by her own feelings of joy at the preservation of the child, and gratitude for the benefits she had received. She was placed in bed, and took another glass of Tokay, with tincture of cinnamon. The bandage was moistened with warm wine. The child was of middling size, strong, and well-formed.

Considerable pain and swelling of the abdomen

with vomiting took place on the 28th and 29th ; and copious discharge of bloody serum was observed both from the wound and through the vagina. On the 7th of September a large abscess was opened in the right groin. On the 22nd, cicatrisation was complete ; and, soon after, the patient was able to prosecute her ordinary occupations. The child died on the 9th.

In September, 1804, Barbara Gröger informed me that she again found herself pregnant, and trusted entirely to my assistance for her delivery. I was sent for on the 19th of February, 1805, and found her in labour. The tense membranes could be felt at the os uteri, which was dilated to the size of a crown ; and they gave way during the night.

In proceeding to the operation on the following morning, I was assisted by Mr. Gürth of Gabel, Messrs. Russy and Kraus of Wartenberg, and Mr. Schwan of Neustadel. The patient's appearance was now very much changed ; the pains had entirely ceased ; the pulse was feeble ; and the abdomen considerably sunk. A hard tumor was felt in the right hypochondrium. We found that, by the advice of a female friend, the patient had exerted herself very greatly, at the same time pressing on the belly, to promote the birth. About a quarter of an hour before we came, she felt something give way, and the pains ceased. On opening the ab-

domen by an incision along the linea alba, as in the former operation, we found that a rupture had occurred in the posterior surface of the uterus, and that the child's feet with the placenta had pressed into the abdomen. The child was immediately and easily withdrawn through this aperture; the uterus contracted; the blood was carefully sponged away; and the wound was closed and dressed as before. Faintness and vomiting followed the operation, but did not last long. A considerable collection of very fetid pus was discharged through the wound, on the 25th, and much acrimonious matter flowed through the vagina. An abscess began to form in the right inguinal and pubic region, on the 28th; and was opened on the 2nd of March. Similar, but smaller, collections took place in the right forearm, and near the left elbow. On the 15th, inflammation appeared in the left inguinal region; and after a few days a large quantity of pus was evacuated by an incision. The cicatrisation of the wound, and the general recovery now proceeded so favourably, that I soon had the pleasure of seeing the patient at my own house, completely restored. She enjoys uninterrupted health to the present time, 1819; can go through the hardest work; and fortunately has not again become pregnant, although the catamenia are regular.

ON

RENAL CALCULI;

BY HENRY EARLE, Esq.

ASSISTANT SURGEON TO ST. BARTHOLOMEW'S HOSPITAL, AND SURGEON TO
THE FOUNDLING HOSPITAL.

Read June 20, 1820.

THE nature of urinary calculi has of late years engaged much of the attention of the medical world; and many most enlightened men have applied their minds to analyse these concretions, and to investigate the causes which influence their formation. The aid of chemistry has been successfully employed in ascertaining their composition, and tracing the proximate principles of the urine; and several interesting statistical reports have been published, illustrating the comparative frequency of the different species, the periods of life at which they have occurred, and the particular districts in which they have prevailed.—It is to be hoped that, by still more extended views, and a more intimate acquaintance with the nature of the soil and the food most commonly used by the inhabitants, we may hereafter arrive at some important conclusions on this interesting subject:

hitherto, however, it must be confessed, that no certain practical inferences have been drawn ; and we have yet to learn the causes which influence its frequent occurrence in particular countries whilst in others it is scarcely known to exist.

From the application of chemical principles to the medical treatment of those afflicted with calculous complaints, some good has undoubtedly arisen ; unfortunately, however, the efficacy of medicine does not extend beyond the occasionally correcting some peculiar diathesis, which may be known to predominate either from the previous analysis of calculous matter which may have passed, or from the state of the urinary secretions.

Whenever a stone has acquired any considerable magnitude, even though its nature may have been accurately ascertained, experience teaches us that all that can be expected from art, is, possibly, to check its increase. In all such cases, recourse must be had to surgery, to remove an evil which the united powers of medicine and the constitution are unequal to combat.

But though the judicious employment of acids and alkalies may in some instances prove of signal advantage, and even wholly alter the prevailing diathesis, yet other cases too frequently occur which alike resist the efforts of medicine, and the strictest attention to diet. It has often appeared

to me that, in such cases, the attention of medical men has been too exclusively directed to the state of the constitution, and remedies have been directed with a view to correct the secretions through the medium of the circulation, without any reference or attention to the peculiar state of the secreting organs. The kidneys, indeed, seem to have been regarded in the light of filters, through which certain fluids charged with extraneous matter were to pass, rather than as vascular organs, endued with all the properties of living matter, and consequently susceptible of the same morbid actions to which all glandular bodies are liable.

Such appears to be the opinion entertained by Dr. Marcet at the commencement of his valuable work. "The formation," he says, "of concretions in the urinary passages being occasioned by the separation or consolidation of certain ingredients contained in the urine, and *being independent of any specific agency of the urinary organs themselves*, calculi are liable to form in any of the cavities to which the urine has access." It is with much deference that I take the liberty of differing from the opinion above cited, and venture to suggest the probability, that in some instances, at least, the formation of calculi may depend on a local morbid action of the kidney, independent of any predisposing constitutional cause.

My attention was first called to this subject in the year 1809, by the examination of a woman

who died in St. Bartholomew's Hospital.—The ideas which then suggested themselves to my mind subsequent experience has only tended to confirm; and as the conclusions to which they lead are practical, I trust the facts will be deemed of sufficient importance to merit consideration.

M. Paris had been liable to calculous affection for eleven years, which she attributed to a violent strain in the loins; from which time she had constantly suffered from pain in the region of the right kidney. During all this time she had passed numerous small calculi, and had submitted to four operations, for the removal of larger concretions. The last operation produced peritoneal inflammation, which terminated her painful existence in the latter part of 1809. During a considerable period that she remained in the hospital, she was under the care of Dr. Powell and Sir Charles Blicke.—The calculi which were extracted, and which passed *per urethram*, were analysed; and every attempt was made by the exhibition of suitable remedies and the strictest attention to diet, to endeavour to overcome the disposition to form fresh calculi, but nothing appeared in the slightest degree to influence the disease, which continued unabated to the day of her death.

On opening her abdomen, the peritoneum was found much inflamed, and lymph was deposited extensively on the surface of the intestines, the folds of which adhered firmly together in various places.

On removing some of the viscera, two ulcerated openings presented themselves on the surface of the bladder, which had been completely closed during life by the adhesions which had formed between the peritoneal surface of that viscus and the small intestines. On examining the bladder, it had a dark sphacelated appearance, and the mucous coat was in some places quite destroyed by ulceration. The left ureter and kidney were perfectly healthy, and bore no appearance of having been at any time diseased. The right ureter was much enlarged, and the kidney was small and misshapen; in its pelvis were two calculi, of the size and shape of almonds; in all the infundibula, and even in the tubuli uriniferi were found calculi of various sizes, amounting to twelve in number*.

On considering all the circumstances of this case, it appeared to me, that the examination *post mortem* satisfactorily explained the total want of success which had attended the medical treatment during life. It was most apparent that the disease was confined to the right kidney. This might have been primarily induced by the strain, or by some constitutional derangement. Diseased action having been once established, and a calculus formed, the presence of this foreign body would prove a sufficient source of irritation to maintain it; and thus the mischief would go

* On examination, these were found to consist principally of lithic acid.

on increasing from year to year, unchecked by medicine or diet ; both of which could only act through the medium of the constitution, by correcting any particular disposition, or improving the digestive functions. It may be said that the lithic diathesis prevailed in this case ; but had that been the case, would not the other kidney have been equally affected, as the same blood must have circulated through both ? and consequently, had the cause of the continuance of the disease originated in any vitiated state of the digestive organs deranging the circulating fluid, it is reasonable to suppose that they must have both participated in the morbid disposition. The difficulty of accounting for the phenomena which occurred in this case may be readily solved, by referring it to a local morbid action of the kidney. The accurate researches of Dr. Prout have shewn that the proximate principles of urea and uric acid are very nearly allied ; it is possible, therefore, that a very slight derangement in the function of one kidney might convert that into a morbid concretion, which, in the other, would form perfectly healthy urine. On this subject, however, it is not my intention to enlarge at present ; I have ventured to inquire, without presuming to decide. When an investigation is, from its nature, so intricate and difficult that it is not possible to arrive at any certain conclusions, there may be some merit in pointing out such as are probable.

I shall proceed now to relate a case of diseased

kidney, most unequivocally originating from a local cause.—In the early part of the year 1816 I was requested to see a Mrs. Eyres, who was supposed to be dying of a diseased ovary, which had suppurated and burst into the bladder. On visiting her I found her hectic, much emaciated, and so reduced that she could not rise from her bed without assistance. She had emptied her bladder a short time before I saw her, and the contents had been placed in a glass tumbler; it had separated into two portions, the upper third of which appeared to be healthy urine; the lower two thirds consisted in thick inodorous pus. She stated that this proportion varied at different times, but that for many weeks she had parted with from two to three pints of this purulent matter in the twenty-four hours, and that it always subsided from the urine on standing. On examining her in a recumbent posture, I found a large tumor on the right side, occupying the lumbar and iliac regions, being continuous with the liver above, projecting forward beyond the linea semilunaris, and descending within the brim of the pelvis below. Her emaciated state enabled me to trace the outline of this tumor with great accuracy. As her bladder was nearly empty, I examined *per vaginam*, and there did not appear to be any direct communication between the tumor and that viscus. This circumstance, combined with the form and situation of the swelling, induced me to suppose that it was the kidney and not the ovary that was diseased: the

history of the origin and progress of the complaint confirmed me in this opinion. It appeared that she had enjoyed good health until the year 1810, when she fell, in going down a steep flight of stairs, and struck herself forcibly in the right lumbar region against a projecting post at the bottom of the rails. She suffered severely at the moment, and had never been free from pain from that time. The tumor she described as commencing in the loins, and gradually making progress in every direction, until it attained its present bulk. The secretion of pus she had observed for about eight months. She had borne two healthy children since the commencement of the disease, and her catamenia had continued to flow until a few months prior to my seeing her. Her very reduced state and the very profuse discharge of pus afforded very little ground of hope from any treatment. A mixture, containing uva ursi and tincture of opium, was ordered for her, which she took for a few days; and her bowels were opened with castor oil. A large blister was applied over the surface of the tumor, which was directed to be kept open with savine cerate. In a few days her pain was so much relieved, and the purulent discharge had diminished so much, that I determined to institute more permanent counter irritants, and made two extensive setons, one in the loins, and the other more anterior. Her amendment from this time was very rapid; she was soon enabled to quit her room, and resume her domestic duties. In about

three months the tumor had so far subsided as not to occupy one-third of its former size, and the discharge of pus ceased except when she used more than ordinary exertions. I urged her on no account to suffer the setons to heal, and she attended to my advice for about six months, during which time she continued free from pain, and comparatively well. Conceiving herself perfectly restored, she now withdrew the setons, and suffered the wounds to close. Soon after this she was again attacked with severe pain in the region of the kidney, and having neglected to follow my instructions, she felt unwilling to apply to me. The disease made rapid progress, accompanied with very severe pain, but no purulent discharge. I was called to see her a short time prior to her dissolution. Her mouth was then covered with aphthæ, and she was rapidly sinking; the tumor in the loins had again become prominent, and was acutely tender to the touch.

On examining her, *post mortem*, the right kidney was found embedded in a large diffused abscess, which had extensively separated the surrounding muscles. The kidney was much larger than natural; its parietes were very thin, and bore no resemblance to its original texture. It contained a considerable quantity of pus, which oozed out at two ulcerated openings. In the pelvis and infundibula were several calculi, and a conical-shaped one obstructed the ureter, and prevented the pas-

sage of pus into the bladder. The left kidney and ureter were perfectly healthy, and there were no other diseased appearances worthy of attention.

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If, in the case of Paris, there was any doubt that the diseased kidney and the formation of so many calculi originated in local injury, there cannot be any reasonable hesitation in referring the mischief in the present instance to the blow sustained in her fall. The same reasoning which I have employed in the former case respecting the healthy state of the other kidney, will apply with equal force in the present. The beneficial effect which resulted from the application of setons in a disease which had existed so long, and was so far advanced, much exceeded what could *à priori* have been anticipated, and affords a reasonable ground to hope that great good may be hereafter derived, in similar cases, from their more early adoption, and a more steady perseverance in their use. I do not pretend to say, that in this case a fatal termination might not have ensued even had the setons been kept discharging. Certainly, however, this most formidable disease was arrested in its progress, and completely held in check during their employment; further than this I am not prepared to state. To persons unaccustomed to the employment of setons and issues in diseases, the cause may appear hardly commensurate to the effect, and they may be inclined to refer the relief obtained in this case to some other accidental circumstance; but any

one who has witnessed the surprizing benefit which often follows their application in necrosis, in some diseases of the vertebræ and other joints, will hardly be sceptical of their influence in arresting diseased action in the kidneys.

I feel happy in having the high authority of that distinguished pathologist, Dr. Baillie, in support of this practice. A short time since he obliged me with the following particulars of a case of diseased kidney which occurred in one of the servants of her late Majesty. He had for a considerable time been liable to violent hæmorrhages from the kidney, which was perceptibly much enlarged and painful. Various remedies had been resorted to without any decided benefit, when a seton was ordered near the seat of the disease. Soon after its application the bleeding ceased for several weeks, and the enlarged kidney diminished much in size.

Other instances of renal calculi, apparently dependent on local injury, have occurred to me, the particulars of which I shall briefly state. In April 1819, Admiral D. called to consult me respecting a very painful affection of the legs, which he described as resembling the application of hot irons to the shin bones. He was very dyspeptic, and had a very foul tongue. A pill containing aloes, rhubarb, and soap, was directed to be taken at night, and an infusion of rhubarb with soda twice

a day; and he was desired to abstain from fermented liquors. His pain and dyspeptic symptoms were soon relieved; but in about three weeks he was suddenly seized with agonizing pain in the left kidney, shooting downwards to the groin, with tenderness and retraction of the testicle, an incessant desire to make water, and every concomitant symptom of the passage of a calculus from the kidney. Suitable remedies were resorted to, and in a few hours three calculi passed *per urethram*, composed of pure lithic acid, with a very fine coating of phosphate of lime. He now informed me that he had suffered from two similar attacks in Jamaica, and one on shipboard. The first attack occurred soon after receiving a very severe contusion in the region of the left kidney, by being thrown from his curricule against a projecting point of rock. Extensive ecchymosis followed the accident, which was very slow in being absorbed; and from that time he had never been quite free from uneasiness in the kidney. I consider this case as particularly interesting in illustrating the formation of calculi from local injury, as the Admiral had for many years been either living in a hot climate or on board his ship, both which situations are stated to be most unfavourable to the production of calculi. From his dyspeptic symptoms it is highly probable that he had a great predisposition to the disease, but there can be no doubt that it was immediately induced by the local injury. My treatment of the case was influenced by this view, and I am happy

to say he has experienced only one very slight attack since. I recommended him to pay very strict attention to his general health, and to use local warm bathing and friction, with a very stimulating linament to the loins. Should he have any return of the disease, I shall strongly recommend the use of a seton, combined with constitutional treatment.

I am at the present time in the habit of seeing a gentleman who has suffered greatly from pain in his loins, and has passed large quantities of lithic acid and mucus in his urine, ever since he received a violent strain in the loins by a man falling on him in the West Indies. He has derived great benefit from cupping and local warm bathing, combined with abstinence from fermented liquors and stimulating food, and paying great attention to his general health.

Mr. Langstaff has favoured me with the following particulars of a case of renal calculi: "The patient was 63 years of age, had been the mother of five children, and had enjoyed good health until Christmas 1813, when she had a fall during the severe frost, and injured her back, from which time she experienced severe pain in the loins, accompanied with difficulty and pain in voiding her urine, which was observed to be frequently of a milky colour. She had been under the care of several medical men, without experiencing any benefit. About six months previous to her com-

ing under my care, her legs became cedematous, and ascites formed, for which she was tapped in the London Hospital. From the violent pain she complained of in the region of the right kidney, distressing sickness, and there being scarcely any secretion of urine, it became necessary to afford her temporary relief by tapping, which was performed on the 17th of January 1815, when upwards of thirteen quarts of colourless fluid were drawn off. The sickness and dyspnoea abated shortly after the operation, but the pain in the loins, more especially in the region of the right kidney, continued, and an enlarged state of that viscus could be felt. The urine began to be secreted, but was mixed with pus, which was detected by its precipitating to the bottom of the *pot de chambre*, after standing. The bowels were kept gently open with castor oil, and a grain of opium given night and morning. A seton was established in the region of the kidney. Pain in the right kidney, and extreme torture in making water, were the principal causes of her misery, and the quantity of pus discharged with the urine was surprising, yet she had neither rigors nor hectic fever. About the 18th of February, the fluid in the abdomen had accumulated in such quantity as to increase her sufferings greatly, and at her request I drew it off on the 23d. Fifteen pints of fluid similar to the former escaped from an opening made with a lancet at the projecting umbilicus. She was again partially relieved, the urine mixed with pus

more copiously secreted, and her bowels more regular. Her powers gradually gave way, and she expired on the 28th of February.

“ *Examination.*—Coagulable lymph had been deposited thickly in a granulated manner over the whole inner surface of the peritoneum, as frequently happens in patients who have died of ascites or of chronic inflammation of that membrane. The liver was extremely small and solid, and its edges, instead of being thin and defined were obtuse and rounded. Its peritoneal covering was extremely thick, which prevented the color of the liver being seen; but a section shewed the whole substance to have a nutmeg-like appearance. Attention was next paid to the examination of the kidneys. The right was of an enormous size, and had the figure and shape of a very large egg of an ostrich. It was almost the largest viscus in the abdomen, having ascended to the concave surface of the liver and descended to the right ilium, and spread towards the vertebræ, so as to encroach on the vena cava. In consequence of the magnitude of the kidney, the cæcum was pushed from its situation in the iliac region; the right ovarium had formed a firm adhesion with the peritoneum, covering the kidney at its anterior part. There were likewise adhesions at its superior part, with the reflected portion on the under surface of the liver. The kidneys were removed from the body to be injected with size and vermilion, that the disease

might be more minutely investigated. The right kidney weighed two pounds six ounces. On removing the peritoneal covering, instead of the regular oviform appearance it before presented, it looked beautifully vascular and lobulated; the cause of the latter appearance was discovered on a section-being made, when above a pint of thick healthy inodorous pus issued. The parietes of the kidney were not more than a quarter of an inch thick in any part. They were formed into sacculi of different sizes, from the matter having been prevented flowing with freedom through the ureter into the bladder, by a large calculus which occupied the pelvis and part of the beginning of the ureter. There was not the least appearance of the natural structure of the kidney; the internal part was very vascular, was thinly coated with coagulable lymph, and bore every resemblance to the cyst of a chronic abscess. The pelvis of the kidney and its continuation were highly inflamed, the bladder contained upwards of half a pint of pus, but the mucous coat was perfectly healthy, which proved the matter to have flowed from the kidney. A calculus weighing twelve grains was found in the pelvis of the left kidney, but that organ was capable, from its healthy structure, of performing sufficient secretion to supply the defect in the other, yet there is every reason to suppose that it would have become diseased in the same manner as the right if the patient had lived much longer, and the calculus not passed into the bladder."

The above instances will, I trust, be considered as sufficient to establish the fact of the formation of renal calculi being sometimes caused by local morbid action, induced by injuries sustained by the secreting organs. In further corroboration of this, I may mention a circumstance which I have often known to occur to different individuals, namely, the effect of horse exercise (particularly if not habitual) in producing a copious secretion of lithic acid, accompanied with considerable pain in the loins. I have frequently noticed the same fact in children affected with diseased lumbar vertebræ, arising probably from the neighbouring disease inducing an increased action in the kidneys.

The practical inferences which I should be induced to draw from the above cases are, that in all instances where the affection can be at all traced to local injury, we should combine local with general treatment, and endeavour to arrest the morbid action by the abstraction of blood, warm bathing, and counter irritants. Such a practice might perhaps be advantageously adopted in other cases not arising from injury, particularly where only one kidney appears to be affected, as although the disease may have originated from constitutional derangement, it is highly probable that the local diseased action may be kept up after that has subsided, particularly should there be any calculus in the kidney too large to pass by the ureter.

It has been very generally supposed that all urinary calculi are formed by a gradual precipitation from the urine. There are, however, some circumstances attending the formation of calculi in the kidney, which lead me to believe it probable that in some instance the calculous matter may be deposited immediately by the secerning orifices of the emulgent arteries, especially in such cases as have been related above, where there was such strong presumption of local morbid action. I was first led to this conjecture by the number of calculi which are occasionally met with in the kidney, which bears more the appearance of secretion from numerous points, than precipitation from a solution; as the latter would rather have a tendency to aggregate on a given nucleus than form so many fresh ones. On considering the subject, several circumstances seemed to favour such an opinion. In the case of Paris, and in one other instance, which I had an opportunity of examining, calculi were found in the tubuli uriniferi, where the urine can hardly be supposed to be detained a sufficient time to allow of any separation of its component parts. On breaking several renal calculi, their fracture presented a very different appearance from those which had been removed from the bladder. This is particularly well marked in the section of a vesical calculus with a renal nucleus. Cases are on record where the whole kidney was converted into a mere cyst, containing one or more enormous

calculi, and some pus unmixcd with urine. Is it possible that in such cases the kidney possessed a power of secreting calculous matter after it had ceased to perform its customary function? A curious fact is mentioned in the Philosophical Transactions, which would seem to warrant such an idea. The case is thus related by Mr. Simmons:—
“ Eleanor Pelcher, 52 years old, about 25 years back, began to complain of pain in the loins, and soon after passed gravel and small calculi with much pain. In about ten years a swelling formed on the loins, which suppurated and became fistulous. Fifteen years from the appearance of the tumor the wound became painful, and after eight days a smooth calculus of twelve grains weight was extracted from it. The urine during all this time passed *per urethram*, but none by the wound, and from the time of the formation of the abscess no gravel passed with the urine. Six other paroxysms of pain have since occurred at different intervals, which have terminated in the passage of seven calculi, the least of them weighing six grains. During the intervals the patient enjoys ease and health. The right kidney does not appear to be affected.”
The phenomena in this case admit of being explained in two ways. It is probable, from the absence of calculous matter and pus in the urine, that at the time when the abscess formed in the kidney, the ureter became obstructed and ultimately obliterated. It would appear also that at the same time the kidney ceased to secrete urine,

as only matter passed by the fistulous opening in the loins, we must therefore either suppose that the calculi which came away at such remote intervals, had existed in the kidney for more than fifteen years, or that the vessels of the kidney which supplied the cyst of the abscess still possessed a power of secreting calculi.

There is yet one more circumstance which would appear to corroborate the opinion that the kidneys possess a power of immediately depositing calculi. The nuclei of a large majority of calculi, formed originally in the kidney, consist of lithic acid, though in many instances, as soon as they pass into the bladder, and sometimes even before they quit the kidney, the triple phosphates, or the oxalate of lime are deposited upon them. It is difficult to explain this on the supposition of the prevalence of any peculiar diathesis, yet it admits of a ready solution on the principle of local morbid action causing a secretion of lithic acid, which becomes a center of attraction for the salts of the urine, in the same manner as a clot of blood or a portion of bougie left in the bladder.

Lastly I would observe, that it is hardly consistent to deny the power of secreting calculous matter to the vessels of the kidney, which we know to exist in the vessels of other parts, as in the formation of gouty concretions, the deposition of calculous matter in the lungs, in the sublingual ducts

and various other situations, and the secretion of phosphate of lime in the surfaces of membranes and the coats of arteries.

It may, perhaps, appear, that it is a matter of no importance whether renal calculi are secreted by the vessels of the kidney, or deposited from the urine after it is formed. The subject, however, is so intimately connected with the previous question which I have agitated at the commencement of this paper, that I have been induced to dwell rather upon it, as I cannot but entertain a hope that in some of these most distressing diseases much good may be hereafter derived from a combination of local with general constitutional treatment, should it be proved that the kidneys may be primarily affected.

*George Street, Hanover Square,
June 1820.*

REFERENCE TO THE PLATES.

PLATE I.

FIG. 1. Represents the calculus described by Mr. Mayo, page 56.

FIG. 2. Refers to Mr. Dalrymple's case, mentioned at page 73.

PLATE II.

FIG. 1. and 2. Represent Mr. A. Cooper's case of calculus, related at page 74.

PLATE III.

FIG. 1. 2. 3. and 4. Represent Mr. Earle's instrument for breaking large calculi, described in page 95. *

In the explanation there given, a word has been omitted, which affects the sense ; it should be as follows :

c. The outside cylinder, fixed above to the upper block and below to the handle *h*.

PLATE IV.

Exhibits the distorted pelvis of the patient on whom the Cæsarean operation was twice performed, as described by Doctor Locher, page 182. It presents a side view, in the erect position, in order to shew that the promontory of the sacrum and the symphysis pubis are in the same perpendicular line.

THE END.

Fig. 1.



Fig. 2.



Fig. 1.

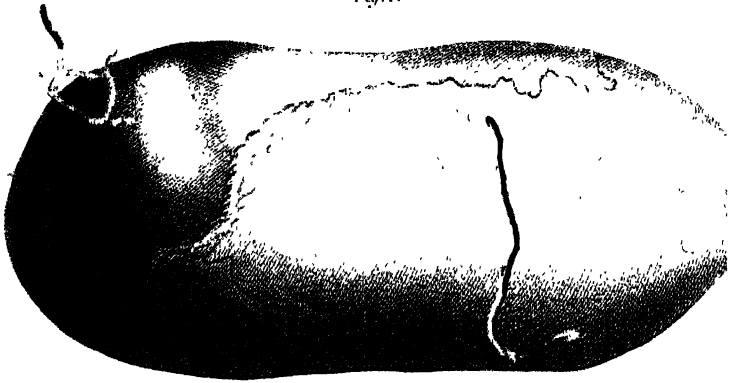


Fig. 2.

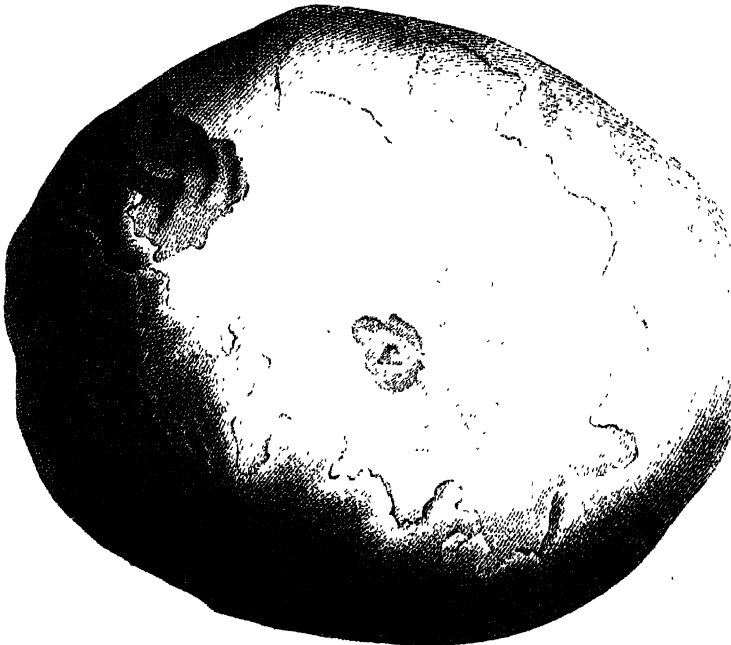


Fig. 2.

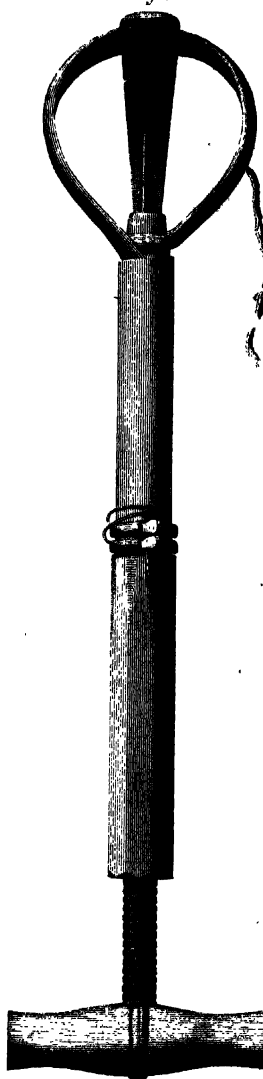


Fig. 2.

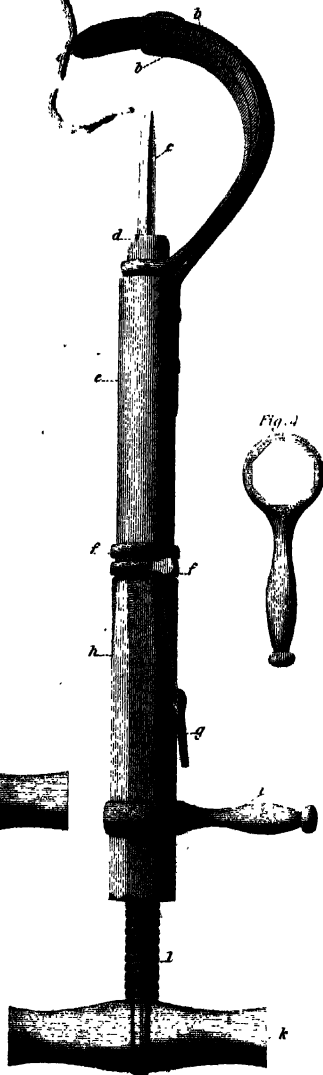
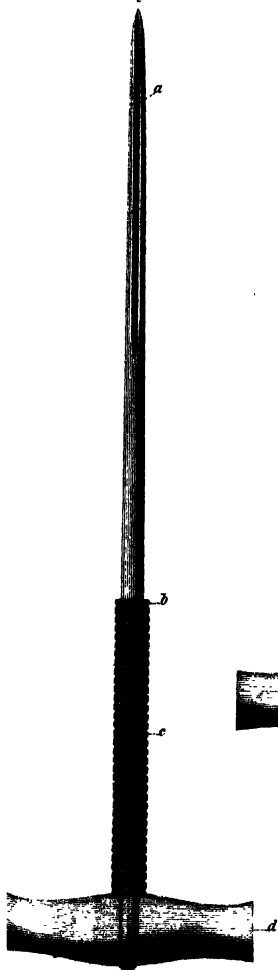


Fig. 3.



Fig. 3.





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ERRATUM.

At page 245, line 9,—The paragraph commencing with “No irritation or other untoward circumstance,” &c. should be transposed with the next paragraph commencing with “*May* 10th,” &c. and should immediately precede that which commences at the last line of the same page with “on examination after death,” &c.

CASES
OF
BRONCHOCELE OR GOITRE,
TREATED BY SETON,

WITH OBSERVATIONS,
BY A. COPLAND HUTCHISON, ESQ.

SURGEON EXTRAORDINARY TO HIS ROYAL HIGHNESS THE DUKE OF CLARENCE, SURGEON TO THE WESTMINSTER GENERAL DISPENSARY, MEDICAL SUPERINTENDENT OF THE PENITENTIARY AT MILL-BANK, WESTMINSTER, AND LATE SURGEON TO THE ROYAL NAVAL HOSPITAL AT DEAL.

Read Nov. 14th, 1820.

IT will be admitted by every one experienced in the science of Surgery, that the preternatural enlargement of the thyroid gland is often attended with serious, and sometimes fatal consequences, exclusive of its deformity, by impeding deglutition and obstructing respiration. The rationale of the treatment heretofore pursued, has neither been satisfactory, founded on a just and scientific basis, nor generally successful; and indeed the very office and utility of this gland in the animal economy are equally enveloped in obscurity.

When first I heard read in this Society Dr. Quadri's paper on the treatment of Bronchocele, which has since been published in the 10th Vol. of the Transactions, I was forcibly struck with the new mode of cure recommended by that gentleman for the removal of the disease in question, and resolved, on the first favorable opportunity, to submit its expediency to the test of actual experiment*.

On the 21st of September, 1819, Sarah Ellis, aged 53, a native of Ireland, then residing at No. 2, Marlborough-square, applied to me at the Dispensary with a Bronchocele, about the size of a large orange, of rather a firm and hard structure; the tumor extended more to the left than the right side of the neck, that lobe of the thyroid gland being most enlarged, and the disease occasioned pain and uneasiness in the left ear and the adjoining parts of the face, although respiration and deglutition continued free from obstruction or impediment.

Whilst in Dublin, thirteen years previously, she gave birth to a child, and some few days subsequent to that event, she was exposed to a cold wind, blowing directly on the neck and throat, which, to use her own expression, seemed to shoot through the parts. Immediately after this occur-

*The practice of passing a seton through the thyroid gland for the cure of Bronchocele, proposed by Dr. Quadri, is, however, not a new practice; for it was recommended by Foderé, and others, nearly half a century ago.

rence, she was seized with fever, which lasted only a few days, and on her recovery from the febrile attack, she discovered, for the first time, the enlargement of the thyroid gland.

On the day she presented herself at the Dispensary I passed a long and narrow seton needle armed with half a skin of silk thread, obliquely through the substance of the gland, from the left lobe upwards, leaving a space of nearly two inches between the entrance and escape of the instrument. The superior and inferior thyroid arteries running deep in the gland, close to the trachea, their principal trunks were avoided by pushing the trachea backwards upon the œsophagus during the introduction of the needle, which, as already stated, passed through the body of the tumor, that is, half way between the external integuments and trachea. Notwithstanding the precautionary means adopted, a trifling hæmorrhage succeeded the operation, but not such as to occasion anxiety to any surgeon. A few days after this, a slight degree of erysipelatous inflammation supervened, which was followed by a profuse discharge of a thin acrid matter. As soon as the inflammatory action had subsided, the discharge was kept up by occasionally smearing the seton with sabine ointment, which supported the necessary stimulus to effect the object in view.

A considerable reduction of the tumor having taken place in the immediate neighbourhood of the

seton ; on the 5th of December, the silk was withdrawn, and a fresh portion introduced in an opposite direction, namely, from the lower part of the right lobe of the gland obliquely upwards, so as to cross the situation or course of the former. The management of the recently introduced seton was precisely similar to that employed in the first, and the discharge continued, with a gradual diminution of this part of the tumor also. During the severe and inclement weather experienced in the following month of February, the poor woman was attacked with fever, and on removing the dressings about that period, the seton was found to have wholly escaped ; but it was not deemed necessary to replace it, as the discharge and gradual reduction of the tumor continued to proceed most favorably.

A slight oozing of healthy pus, however, continued to exude from the apertures caused by the setons, for nearly a twelvemonth from the operation ; but no other inconvenience arose from that circumstance. The disease is now scarcely perceptible. The patient is perfectly well, and the skin which covered the tumor of its natural colour.

Upon the whole, the operation by seton, in cases of Bronchocele, is not, generally speaking, to be considered as dangerous when performed by a judicious surgeon, well acquainted with the anatomical structure of the parts ; but in delicate and

irritable habits and in the hard lobulated species of the disease, some circumspection is to be observed; and indeed in such constitutions, a cautious practitioner would well weigh the necessity of operating at all, unless where symptoms of suffocation and impeded deglutition became urgent.

There are two states of Bronchocèle, however, which it is necessary to distinguish in the application of the seton as a curative remedy; namely, the firmly indurated and lobulated species of tumor, and the more yielding and soft. The first is found more intimately connected by adhesions to the trachea; and in this species it might be more prudent, perhaps, to push the seton needle through a smaller portion of the diseased gland, repeating the operation on other parts of it as circumstances shall afterwards render expedient; though a due degree of caution will probably guard against the danger of inflammatory action being communicated to the mucous membrane of the trachea. But in the softer and more yielding Bronchocele, the operator may boldly pass the instrument throughout the substance of the morbid mass, with the most perfect safety, I apprehend. In both cases, however, the inflammatory excitement, when deficient, must be maintained by the application of stimulating ointments to the cord, or of other more irritating substances, if necessary.

Independently of the danger of exciting inflam-

mation in the lining membrane of the trachea, the deformity remaining after the removal of the seton is considered a serious objection to the operation ; but if we place implicit confidence in Dr. Quadri's representation, this deformity usually disappears in a few months. 4th February, 1821.—Sarah Ellis was seen to-day by the author, and the state of her neck fully corroborates Dr. Q.'s assertion. When respiration and deglutition, however, are likely to be obstructed, all other considerations must yield to the impending danger, and the operation be had recourse to.

In this, as in many other surgical operations, success will depend much on the after-treatment ; especially should a high degree of erysipelatous inflammation supervene ; such as removing the seton altogether, the immediate application of leeches to the inflamed tumor, and a strict adherence to the sedative plan of treatment. But on the contrary should the excitement be found deficient, the means already pointed out must be pursued, without which a complete cure cannot be looked for.

The cure of Bronchocele by seton appears to me* to be effected in two ways ; first, by the suppurative process induced, gradually breaking down the diseased organization ; and, secondly, by the stimulus and irritation communicated by the cord to the absorbent vessels of the part, and their action

thereby excited to carry off a portion of the morbid mass*.

To enumerate the various probable causes of this morbid affection as detailed by authors, and the no less various remedies recommended for its cure, both internal and external, would be worse than useless ; it would be a loss of time. * It appears to me, however, that our enquiries should be first directed to obtain a knowledge of the functions of the gland itself, before we can reasonably expect to arrive at the causes of the diseased structure. Having once attained this most important point, we shall the more readily be enabled to discover a safer and less painful remedy than the seton ; with this view it would be extremely desirable that whenever the death of a patient labouring under Bronchocele should occur, the opportunity of a careful dissection and minute examination into the probable functions and utility of the thyroid gland, might not be

* I was last year informed by Mr. Nerman, a very intelligent medical student from Sweden, that it is a very common practice in Denmark, to make incisions into the substance of the diseased gland in Bronchocele, and that this operation frequently succeeds in curing the disease. Dr. Baillie has stated to me that the late Dr. William Hunter used to mention a case of this kind which was cured by an incision made into the diseased thyroid gland. Whether stimulating dressings were afterwards applied to the incised parts in these cases, I have not been able to ascertain ; at all events, however, we have reason to assume that the cure by incision must be effected in the same manner as in that by seton.

omitted. Discoveries are sometimes made in diseased organs and monstrosities, by the enlargement of vessels, &c. otherwise so minute and obscure as to elude the most diligent search and detection. Dr. Barton, on the authority of Mr. Foderé, mentions a communication between the larynx and this gland, which was inflated by blowing air into the larynx properly secured by ligatures ; whether the inflation was produced through some communicating ducts, or that the air insinuated itself into the cellular substance of the part, does not clearly appear. See “ a memoir concerning the disease goitre as it prevails in different parts of North America.” By B. S. Barton, M.D.

In order that the Profession may judge of the propriety of this mode of treating Bronchocele, I shall subjoin notes of Mr. Gunning's case, of others by Mr. A. T. Thomson, of the Chelsea Dispensary, and of one by Mr. James, of the Devon and Exeter Hospital, with which these gentlemen have been so kind as to favor me. I embrace this opportunity, however, of stating, that it is my determination to continue the practice in all cases where the chance of success shall appear, to my judgment, commensurate with the risk to be incurred. The President of this Society, and several other Members of the Profession, have recently seen Sarah Ellis, to all of whom the favorable result of the operation was manifest.

I cannot conclude these short observations on Bronchocele, without strongly inculcating on the minds of professional gentlemen the utility of farther and more numerous trials of the seton in the disease under consideration ; for, with Fontana, "I know but one class of people who never err ; those who do nothing, observe nothing, and make no experiments."

I embrace the opportunity of adding a note to this communication, in order to notice a paper of Dr. Coindet, of Geneva, on the subject of the cure of Goitre by a solution or tincture of Iodine : this remedy, it appears, has been very successful in the practice of Dr. Coindet ; but for a detailed account of its utility in Bronchocele, and for the method of preparing it, I must refer to the original paper in the Bibliothèque Universelle for July 1820, or an abstract of the same in the Journal of Science, Literature and the Arts, No. XIX.

Dr. Straub, of Howfyl, has inserted in a German Journal, for February 1820, a memoir, giving an account of his having discovered Iodine in sponge and other marine bodies, which he considers to be the natural source of that principle ; and asserts that Iodine *might* be advantageously applied and used in all the diseases in which prepared or burnt sponge has been employed. His paper was translated into French, and inserted in the Bibliothèque

Universelle of Geneva for August 1820; but the probability is that Dr. Coindet knew nothing of this circumstance when his paper was published in July, or the circumstance would have been adverted to by the latter gentleman.

NOTES ON MR. GUNNING'S CASE.

Ann Smith, aged 48, was admitted into St. George's Hospital the 26th April 1820, labouring under bronchocele of eight or nine months duration. The disease was of a hard structure, the left lobe of the thyroid gland as large as a small orange, the right nearly twice that size; with great part of the lower surface of the tumor firmly attached to the sternum; and the disease, occasionally, had so much impeded respiration as to threaten *immediate suffocation*.

Since her admission, she has experienced one of those violent spasmodic affections of the muscles of respiration which threatened instant dissolution, but from which she was relieved by the application of leeches to the tumor.

The usual remedies had recourse to in such cases, not benefiting the patient, and as her life had, several times, been in imminent danger; it was determined in consultation by the surgeons of the hospital,

to give her the chance of relief, by the introduction of a seton. On the 6th of May, therefore, in the presence of his colleagues and myself, Mr. Gunning passed through the substance of the right lobe of the gland in an horizontal direction upwards, the same seton needle I had constructed and used in the case previously detailed, and which was armed with a skein of white silk.

No irritation or other untoward circumstance resulted from the operation, so that Mr. Gunning had, during many days, contemplated a repetition of the operation upon the other lobe of the gland.

May 10th. Some irritation and feeling of distress; the parts contiguous to the seton appear in a sloughing state.—*14th.* Seton withdrawn, leaving the right lobe of the gland considerably diminished.—*20th.* Experienced another attack of irritation in the trachea, with great anxiety and difficult respiration, so as to prevent her lying in the horizontal position. Very little external inflammation.—*30th.* Sloughs separated, and parts appear remarkably healthy. A few days after the last report her cough became very troublesome, and she continued to decline in strength very gradually until the 24th of June, when she died, after another severe attack of irritation as before described, being six weeks after the seton was withdrawn.

On examination, after death, the remaining sub-

stance of the thyroid gland was in a sloughing state, and there were some slight streaks of inflammation observable on the lining membrane of the trachea. The bronchiæ, and every other part of the body examined, were healthy.

From the little irritation excited by the seton in this case, from the sloughing and discharge never having been so considerable as to occasion alarm for the safety of the patient, and from her death occurring at so distant a period after the seton was withdrawn, and in one of those spasmodic attacks, which had several times previously threatened her life, I am authorized by Mr. Gunning, to state, that he has not conceived any unfavorable opinion of the operation by seton in this disease.

I cannot conclude the notes of this case without expressing my best thanks to Mr. Gunning, and to the other surgeons of St. George's Hospital, for the very liberal and polite attention I have experienced from them on this and some other occasions.

Spring Gardens, 28th Oct. 1820.

MR. THOMSON'S CASES.

91, Sloane Street, 20th Sept. 1820.

MY DEAR SIR,

I regret that no particular details of the cases of Bronchocele, which were

treated with the seton by me at the Chelsea and Brompton Dispensary, have been preserved; and, therefore, any thing I can communicate respecting them must be supplied entirely from memory.

The first case was that of a young woman of the name of Sarah Waller, twenty-two years of age, who came from the country, and applied at the Dispensary on the 23d of December 1815; in consequence of having seen one of her friends who had been cured of Bronchocele at the Dispensary. As far as I can recollect, the tumor, which was confined to the fore-part of the neck, was about the size of a man's fist, and projecting about one inch and a half forwards; the skin firm and somewhat elastic, and of the natural appearance. There was no pain in the tumor; nor was there any difficulty of respiration; but I remember the patient complained of an unpleasant sense of distension of the skin and pressure on the trachea being felt whenever she caught cold. The disease was at first treated with burnt sponge, the blue pill, and frictions; and this plan, with occasional blisters, was continued until the 3d of October 1816, when the patient wishing to go into the country, was discharged, with a recommendation to persevere in the use of the frictions, and to shew herself again to me on her return to town. The tumor, at this period, was certainly smaller than when she applied to be admitted a patient of the Dispensary; but the progress was not such as authorized an opi-

nion that it would be, ultimately, discussed by the means, which had hitherto been employed. About six months afterwards, she again put herself under my care; and as I had, in the interval, accidentally read in some periodical work, I think an American Medical Journal, of a case of Bronchocele having been cured by a seton, I resolved to hazard the attempt in this instance; and on the 8th of March 1817, passed a seton from above downwards obliquely through the body of the tumor. A considerable discharge of blood followed the withdrawing of the needle, and produced faintness in the patient; but, although the blood continued to ooze out for two or three days, yet no other inconvenience resulted. The tumor swelled considerably for several days, and produced some quickness of pulse, which was subdued by purges; but the seton gave little pain or uneasiness; and in ten days discharged, although not very freely, a thin matter, more like a mixture of lymph and pus than real purulent matter. The seton was withdrawn at the end of two months; and the tumor being then reduced to little more than a fourth of its natural size, the patient went back to the country, with a request to inform me if it again increased; which I conclude has not taken place, as I have not heard any thing from or respecting her since her departure from London.

A similar practice was resorted to in another case at the Dispensary in 1818; but, as the pa-

tient became irregular, and was lost sight of in a week after the seton was introduced, I shall not trouble you with it.

The third case was that of a veteran of the name of Godwin, aged sixty-one, who was at the time of his application at the Dispensary, the 22d of June 1820, a watchman; and is still, I believe, in that employment. The swelling was on the right side of the neck only, and extended upwards to the angle of the jaw. It was soft, and lobulated; the skin redder than natural; painful; and respiration in some degree impeded. The seton was introduced by an incision made with an abcess lancet a little below the angle of the jaw, and carried forward by means of a firm pointed silver probe, which met with little resistance; and was brought out at a counter opening made at the lower part of the tumor. A small quantity of something like pus followed the probe; but very little blood; and in three days a copious discharge was established. In three weeks the tumor was very greatly diminished in size; and as the man complained grievously of the pain the seton occasioned, it was then withdrawn, and the patient discharged in the following week, at his own desire; although there was still some weeping of matter from the lower orifice. The rapidity with which the tumor was reduced in this instance I ascribe to its soft character: and I am inclined to think that the seton was carried through betwixt the lobules of

which the gland is composed, rather than that it directly penetrated its substance. In both cases, however, the quantity of the discharge was scarcely sufficient to account for the effect produced ; which I am disposed to attribute more to the irritation excited and consequent absorption, than to any breaking down of the substance of the enlarged gland.

In closing this imperfect account, I think it necessary to say that, although the introduction of the seton was suggested to me by the incident I have mentioned, yet, that I would not have so readily embraced the hint, had not the recollection of the removal of the largest Bronchocele I had ever seen, by an empirical practice, tended to confirm my opinion of the efficacy which the seton was likely to produce, if it could be so introduced as to avoid wounding the larger arterial branches. This case I shall now take the liberty of briefly detailing to you.

Mrs. Todd, the wife of the steward of the late Marquis Townsend, had frequently applied to me on account of the difficulty of respiration, occasioned by a Bronchocele which occupied the whole of the anterior part of the neck, extending laterally to each ear, and resting pendulous upon the upper part of the thorax: the surface was spread with very large veins ; and it formed a tumor, at least as large as the head of an ordinary sized man. Af-

ter the death of the marquis, and of her husband, Mrs. Todd went to reside in Queen Street, near the Paddington Road; and was there on the 22nd of June 1811, when I was summoned to attend her, at five o'clock in the morning. On my arrival I found her in bed, groaning, as if in the most excruciating torture; with several females in the room, who informed me she was in the agonies of death. On enquiring the cause, I found she had been advised by a neighbour (a female) to apply a plaster composed chiefly of quicklime over the whole of the tumor; and that it had produced all the pain and inflammation I now witnessed. She had been delirious; and although the plaster had been taken off two hours before I saw her, she was then incapable of answering my questions. The examination of the tumor convinced me that her sufferings were equal to her expression of them. The inflammation extended downwards over the greater part of the thorax, involving the mammæ; and upwards over the whole of the head: whilst there was an evident slough forming equal to the entire extent of the tumor. After bleeding her largely, calomel and opium were prescribed, and poultices laid over the tumor, whilst the other inflamed parts were kept cool by means of an evaporating lotion.

In a few days a tremendous slough separated and gradually came away, laying bare the whole of the muscles of the neck. The discharge was awful, and I was in daily fear of seeing my patient

sink under its effects, notwithstanding the use of bark, sulphuric acid, wine, and opium. She, however, rallied; and on the 14th of October, five months after the application of the caustic, I took my leave of her; the sore being completely healed, and scarcely any vestige of the tumor remaining *

Believe me, dear Sir,

Yours faithfully,

ANTHONY TODD THOMSON.

MR. JAMES' CASE.

*Cathedral Yard, Exeter,
October 8th 1820.*

SIR,

John Brown, aged 35, was admitted a patient of the Devon and Exeter Hospital in the latter part of the summer of the year 1819, under the care of Dr. Daniels, for bronchocele, and was treated by him, and by Dr. Blackall (during his absence from

* Mr. J. Baillie Fraser, in the narrative of his Travels in the Himālā Mountains, speaking of bronchocele, or goitre, which prevails very much in the valleys of that mountainous district, remarks: "We understood that it was sometimes cured, when early means were taken; and these are said to consist in extirpation of the part by the knife. We saw some persons who had the scars on their throat resulting from this mode of cure, which had in these instances been completely successful."

Journal of a Tour, through part of the snowy range of the Himālā Mountains, 4to. Lond. 1820, p. 349.

illness) according to those modes which have often been found beneficial; and having mentioned who were his attendants, no doubt can be entertained but that he had received every assistance which medical skill can give; nevertheless it was very obvious that the tumor increased, and from its increase his life was threatened; as the man, indeed, himself, believed, and was, consequently, exceedingly anxious that any plan should be adopted for his relief. Having recently seen Dr. Quadri's paper published in the tenth volume of the Medico-Chirurgical Transactions, I suggested to Dr. Blackall, who then took care of him, the propriety of trying the plan Dr. Quadri recommends; and as he fully concurred, and the man willingly consented, I proceeded to perform the operation on the 18th of December: my colleagues Mr. Barnes and Mr. Harris being present.

The tumor was of the size of a large flattened orange, firm and elastic; it extended to the sternum, and was overlapped on either side by the edges of the sterno-mastoidei muscles, and was so firmly bound down either by them or by fascia, as to cause very considerable and manifest pressure on the trachea. It extended nearly equally on both sides.

A Trocar needle* armed with silk was passed obliquely through the tumor from above down-

* The common needle used for passing setons in Hydrocele.

wards, and from left to right as nearly through its centre as I could direct it : some glairy fluid escaped, most probably from a cyst, and he experienced immediate relief from the consequent diminution in the bulk of the swelling, which was about one third, and he breathed freely and easily.

On the following day the obstruction was again manifest, and his face was flushed, I directed him to be bled and purged ; his pulse was frequent and soft.

On the subsequent days there was increased difficulty of breathing, very harrassing cough, his voice became suppressed as in laryngitis ; copious expectoration came on ; his countenance became haggard ; pulse very frequent, small and weak. Under these circumstances I withdrew the seton, on or about the 28th of December.

These symptoms abated only in a slight degree after the seton was removed ; and there seemed much reason to fear that mortification had taken place in the trachea and bronchiæ, and would prove destructive ; at this time he expectorated some quantity of transparent and firm lymph, bearing more the appearance of calves'-foot jelly than any thing else, and shortly afterwards layers bearing the appearance of adventitious membrane ; and at the same time a similar substance could be drawn out of the orifices made by the seton, which had ulce-

rated. During this time there was puriform mucus expectorated, and a great degree of orthopnoea : nevertheless, at the expiration of a month from the time of the operation, these symptoms had much diminished, and the tumor had lessened very considerably. On the 29th of January, the irritation of the trachea, the cough, and the constitutional disturbance had disappeared, and on February 6th, the tumor had also entirely disappeared, leaving no other traces of its existence than the scars of the seton needle employed for its cure. He regained a state of perfect health, and many months afterwards this continued, when he went to London, and I took that opportunity of desiring him to show himself to Mr. Abernethy, by which means his case became known to you.

The duration of the disease, before he was admitted to our Hospital, was two years.

The following remarks may be made :

1st. From the increase of the tumor, and the increasing difficulty in respiration prior to the operation, the case would, in all probability, have soon terminated fatally by suffocation, which was also the patient's own conviction.

2dly. None of the ordinary means were capable of relieving him.

3dly. He owed his cure to this operation.

With regard to the symptoms which occurred in the trachea, they seem difficult of explanation. It maybe conjectured that the needle had traversed the trachea; but then there would have been immediate obstruction from the presence of the silk; there would have been irritation at once, as in those cases where a canula has been introduced in the operation of Bronchotomy, and more speedily increasing from the nature of the substance—silk; there would also have been some expectoration of blood in all probability: nay more, had this been the case, there would have been a communication between the trachea and the external wounds. But after the seton had been withdrawn, at the time the adventitious membrane presented itself at the wounds, and was also expectorated, the flame of a candle placed before these wounds was not in the least affected when he closed his nostrils and mouth, and endeavoured to expel the air from his lungs with full force. This was repeatedly tried, and with the same result. From considering these circumstances, and from not having the least reason to suppose from any one cause at the time of the operation that the trachea was wounded, I must believe that it was not, and that the inflammation which did occur, was communicated from the tumor to it: and it is material to remember that considerable cough and affection of this passage had existed previously to it.

As I expected to find the tumor subside under the discharge produced by the seton, I was desi-

rous to keep it in, and did so, until the urgency of the symptoms compelled me to withdraw it.

The feebleness and frequency of the pulse became so great, that I feared to have recourse to very active measures to reduce inflammation under the circumstances; for as long as the cause subsisted, no means employed would remove it. I encouraged the suppuration from the part by fomentations and poultices; and in proportion as the local disease got well, the general affection of the mucus membrane of the lungs subsided.

Upon the whole I should conclude, on comparing this with Dr. Quadri's cases, that the operation was more urgently called for than in them; that it was attended with more formidable symptoms, and that its success was more remarkable and complete.

Your most obedient,

humble servant,

J. H. JAMES.

OBSERVATIONS
ON THE
SCROFULOUS INFLAMMATION
OF THE
PERITONCEUM
OCCURRING IN CHILDREN,
AND
FREQUENTLY DENOMINATED MARASMUS.

By GEORGE GREGORY, M.D.

SENIOR PHYSICIAN OF THE ST. GEORGE'S AND ST. JAMES'S DISPENSARY.

Read June 20, 1820.

THE terms marasmus, infantile remittent fever, and diseased mesenteric glands, have long been employed to designate a disease of the abdominal cavity to which children are subject; but if I may judge from the writings of those authors which I have consulted, they are used very indiscriminately, and without attaching to each any precise idea of the pathological nature of the affection to which it is applied. The confusion and inaccuracy which have consequently crept into our views of the abdominal diseases of children, appear to me to

have been productive of much inconvenience. Our prognostics in particular, have been vague, and often incorrect, and a loose mode of reasoning concerning their proper treatment has been adopted, wholly different from that strict and scientific accuracy which now so very generally pervades the views of the physician in the management of disease. To supply in some respect this deficiency, by pointing out the different varieties of abdominal diseases which occur in children, and attempting to discriminate their symptoms, is the object of the present paper. On the treatment of these affections, I regret to say that I have little to offer worthy of the notice of the Society ; but, believing that accurate pathological views of disease are the only sure basis upon which our treatment can be founded, I am not without my hopes that the following observations may ultimately lead to some improvements in practice.

Dr. Pemberton, in his excellent treatise on the diseases of the abdominal viscera, writes at some length, of the infantile remitting fever, and of the disease of the mesenteric glands. As this, to the best of my judgment, is the work of most repute on those affections which form the subject of the present essay, it may be proper briefly to recapitulate the ideas of this author concerning their pathology. The disease^{which} which, in common with most writers, Dr. Pemberton calls infantile remitting fever, and which, in many of its symptoms, he

states to bear a close resemblance to hydrocephalus internus, he believes to depend upon "irritation on the intestines, and partly perhaps upon the absorption of their putrid contents." He informs us, that he was present at the examination of a child of four years old, who died of this complaint. The belly was swelled to a very large size, but there was not the least appearance of inflammation on the peritonæum, or upon any of the viscera of the abdomen, or any fluid in the cavity. The mesenteric glands were, in a small degree, enlarged. The intestines were distended to an enormous size, so that the colon measured seven inches in circumference, and all the other intestines were, in like manner, greatly distended. The liver, pancreas, spleen and kidneys were natural.

When treating of the disease of the mesenteric glands in children, Dr. Pemberton is at pains to distinguish it from acute and chronic peritonitis, and from the infantile remittent fever. He considers the disease to consist in a very gradual change of the structure of the glands, and, though it is nowhere distinctly avowed, yet it is obvious that he looks upon this affection as one of the forms of scrofula.

Dr. Baillie, in his morbid anatomy, describes a scrofulous enlargement and ulceration of the mesenteric glands, which, he says, is more apt to occur in children than in persons of a more advanced

age, and he states the symptoms to correspond very much with those produced by the common round worm of the intestines. This comprizes the substance of the information which I have been able to procure from these accurate authors, regarding the pathology of the abdominal diseases of children. For some time past, I have directed my attention to this subject, and the result of my observations I shall now detail.

I think I have been able to distinguish three different states of abdominal disease in children, which have, as a common character, fever of a slow remitting kind, and a general wasting of the body. The first of these consists in simple disturbance of the functions of the intestinal canal without organic derangement, or to use the words of Dr. Pemberton, in "irritation on the intestines." The account of a dissection which I quoted from the work of that author, points out that this state of disease may prove fatal without inducing inflammation or ulceration within the abdominal cavity, but it will readily be admitted that this is not common.

In a fatal case of this kind which I lately examined, I was struck with the uncommon emptiness of the whole tract of intestines. It seemed probable that the marasmus was here owing to the rapidity with which the food was hurried through the bowels. The evacuations in this case were very frequent, and *always slimy*. This form of marasmus is, however, the most under our controul, and

I have reason to believe that a large proportion of the cases which are cured, are of this kind.

The second form of marasmus is that in which the mucous membrane of the bowels is extensively implicated. After death, ulcerations both of the great and small intestines are observed with more or less enlargement of the mesenteric glands, and sometimes, though rarely, ulceration of them. I presume that, in many cases, this form of the disease is merely the second stage of that which we have already described, but as the former will sometimes prove fatal without inducing this latter affection, so, in like manner, it is possible that inflammation of the mucous membrane of the bowels, may, in children, be sometimes the primary disease. A considerable number of these cases, perhaps even the larger proportion of them, end fatally, but I have seen some recover where I had every reason to believe that this state of the intestinal canal existed.

The third form of marasmus is that to which it is my intention, in this paper, more particularly to allude. The observations which I have made upon it induce me to think that it is primarily a disease of the peritonœum; and it differs from both the others in the circumstance of its being completely beyond the control of medicine. The symptoms and progress of this disease, and the appearances found on dissection, will be noticed presently; but I wish first to explain why it is that in my views of the pathology of marasmus, I have

omitted any particular notice of the mesenteric glands. I have done so, not because I distrust the observations of those authors who have spoken of such a disease, but first, because in the various dissections which I have made with the hope of elucidating this subject, I have never once met with any disease of the mesenteric glands which was not complicated with, and probably referable to a diseased state of the mucous or serous membrane of the abdomen; and secondly, because in many of those cases which were seen by other practitioners, and denominated disease of the mesenteric glands, I had an opportunity of proving, by dissection, that those glands were only slightly affected, so as to be scarcely noticed in comparison with the extent of disease present in one or other, or both of those membranes.

From the circumstance of the inflammatory affection of the peritonœum to which I now refer, being usually met with in children of a scrofulous habit, and from its going on to the formation of a thick and imperfect kind of pus, I have called it the scrofulous inflammation of the peritonœum, and I now proceed to detail its symptoms and progress.

The distinguishing feature of this form of marasmus is the occurrence, from the very first, of tenderness of the abdomen, soon followed by occasional shooting or lancinating pains. The tenderness of the abdomen increases gradually, until at

last, the slightest touch of the hand makes the child cry. The attacks of acute pain occur in paroxysms, at first perhaps not oftener than once or twice a day; but as the disease advances they increase in frequency, and at the same time in violence. I have seen them happen as often as once in ten or fifteen minutes. They do not last long, and immediately after an attack the child appears lively, and as if nothing ailed it. The attacks of pain are at first confined to one part of the abdomen, but by degrees they extend over the whole belly, sides and back. The abdomen is at first swelled as well as tense, but in the progress of the disease the swelling commonly abates, and is seldom upon dissection perceptible to any great degree.

The pulse is always above the natural standard, generally about 100, with a considerable degree of strength and fullness. This character it will often retain until a very late period of the disease. The tongue is for the most part clean during the whole course of the disease. The appetite is irregular, but generally good, and frequently voracious. The child indeed complains of a feeling of fullness, upon eating even a very small quantity of food, and on this account he eats frequently, and but very little at a time. There is generally a good deal of thirst present. The bowels, if left to themselves, will commonly be found to act, but the appearance of the evacuations is that, which of all the symptoms most strikingly characterizes the disease. At first perhaps

they are green, or slimy, or fetid, but when the disease has existed about six weeks or two months, the stools will be found to consist of a whitish, or whitish brown matter, of the consistence of a thin pudding. Nor do the evacuations differ more in quality than they do in *quantity*, from those in health. The quantity passed by the child in 24 hours, and that without the aid of medicine, is often enormous, and I have seen it taken notice of by the parents, as greatly exceeding what the child could have taken in by the mouth. In this they were probably right, and the source of this great discharge from the bowels I shall presently allude to. This state of the bowels frequently continues for six weeks or two months, the body of course wasting the whole time, until diarrhœa at length comes on, attended with petechiæ, which in the course of three or four days puts a period to the child's life. In the course of the disease the head never suffers, so far as I have seen. A cough and shortness of breath are occasionally met with. Very little water is made, and that very often with extreme difficulty. Deceitful remissions of all the symptoms will occasionally take place, which before I was better acquainted with the disease, inclined me to believe that I had produced some effect upon it, but I soon detected my error. The usual duration of the disease is from four to five months. The child is often not confined wholly to its bed, until the last month.

These are the most important diagnostic marks of the disease, that I have been able to trace. The appearances found upon dissection will next require notice.

On cutting through the parietes of the abdomen, all trace of abdominal cavity will be wanting. The mesentery, bowels, and peritonæum, lining the parietes, will be found united together into one mass. The peritonæum, in all its duplicatures, appears thickened, and on cutting through the diseased mass, very large quantities of scrofulous matter will be found. The mucous membrane of the bowels, particularly the small intestines, appears ulcerated in various places, and at these points of ulceration the convolutions of the intestines communicate, so that instead of forming one line of canal, as they will continue to do even in advanced stages of common chronic peritonitis, they constitute a mass of tubes communicating freely with each other, and with the thickened and ulcerated peritonæal membrane, by innumerable openings. The matter, which will be found both within and without the mucous membrane, will be observed to correspond exactly with that which was passed during life by stool.

I consider myself warranted in looking upon this as primarily a disease of the peritonæal membrane, because in the first place, the early symp-

toms of the disease are those of peritonæal inflammation : secondly, because the tongue, appetite, and functions of the bowels are not sensibly affected, until a period of the disease, when we may reasonably conclude that in the progress of ulceration, those communications between the membranous linings of the intestines have formed, which appear to characterize this affection : thirdly, because on dissection the peritonæum is found so universally diseased, the portions of it lining the liver and diaphragm being as much involved in the disease, as those which form the mesentery. In one instance only have I observed the affection to be limited to particular portions of the peritonæum, and there the mesentery, mesocolon and the lining of the bladder and pelvis, were the parts principally occupied by the disease.

It appears reasonable to conclude, that the subsidence of that swelling, which generally accompanies the tenderness of the abdomen in the early stages of this affection, is owing to the evacuation by the bowels of the matter, which had been formed by the thickened and inflamed membrane ; and of course to the same cause we are to attribute the enormous *quantity* of the evacuations, and the wasting which goes on, though the appetite continues good.

I have never been able satisfactorily to trace the causes of this disease. I have no reason to think

that it arises, like many of the other forms of marasmus, from errors in diet ; nor have I succeeded in tracing it to cold. Its causes, therefore, like those of the chronic peritoneal inflammation of adults, are altogether unknown. In one instance I observed it to succeed pneumonia terminating favorably by abscess.

The practice which I have adopted in this disease has consisted in the application of leeches and fomentations, during the first stages, and afterwards in the employment of purgatives, mercurial alteratives, tonics, chalybeates and absorbents; but as I never could persuade myself that I had produced any real impression upon the disease, it would be unnecessary to enter into any *detail* of the treatment. When the attacks of pain become very violent, as they will always do in the latter periods of the disease, laudanum affords the only relief which it is in our power to afford, and I have not observed, that laudanum, even in the large doses in which I have been obliged to order it, has constipated the bowels.

It remains to enquire in what manner this form of marasmus may be distinguished from the others, of which I have made mention. I consider that the excessive tenderness of the abdomen during the whole course of the disease, the paroxysms of acute lancinating pain, and after a certain time the evacuation by stool of very large quantities of a thick white

matter, wholly different from the usual appearance of *fæces*, are sufficient to distinguish the scrofulous inflammation of the peritonœum from every other form of marasmus. I have not yet so far satisfied myself with regard to the symptoms, progress, and morbid appearances of the inflammation of the mucous membrane of the bowels occurring in children, as to describe its peculiar character, but I may mention that this form of marasmus differs from the preceding, in being much more rapid in its course, proving fatal sometimes in the course of three weeks or a month. I have reason to believe that it is this form of marasmus which is most liable to be confounded with hydrocephalus internus. I have seen several cases which counterfeited very closely the symptoms of that disorder, where, upon dissection, no morbid appearances were observed in the head, but in the abdomen were extensive ulcerations of the mucous coat of the intestines, with considerable increased thickness of the mesenteric glands, probably referable to the diseased state of the mucous membrane. The origin and diagnosis of hydrocephalus, however, being a subject of great interest and importance, I propose, on some future occasion, to offer to the Society some observations concerning it, and shall reserve, therefore, until that time, what I have further to say, regarding the different forms of the marasmus of children.

CASE

OF

FRACTURED OS PUBIS

SUCCESSFULLY TREATED,

By HENRY COATES, Esq.

MEMBER OF THE ROYAL COLLEGE OF SURGEONS, AND SURGEON TO
THE SALISBURY INFIRMARY.

COMMUNICATED BY

MR. EARLE.

Read June 20, 1820.

ON the 8th of November, I was sent for to attend a consultation at Hindon on the case of Mrs. O——, who, I was informed, had been injured by the overturning of a coach which had fallen several feet from the road side three days before. I found the lady lying on her back quite incapable of motion, and the least jar of the bedstead, or a quick and heavy movement across the room increased her sufferings to such a degree, that she screamed out from exquisite pain.

She informed me, that on the coach being overturned, the three gentlemen, likewise passengers,

fell on her, and that by the pressure of their weight, the pubis was forced against the seat. From the situation of the pain, the first impression on her mind was that her back was broken.

As soon as possible, she was removed into a post chaise and conveyed four miles, suffering the most excruciating torture; she was afterwards with great difficulty placed in bed, and very properly, freely bled.

Upon examination I found but little tension of the pubis, but on moving the left lower extremity, a *crepitus* could be distinctly felt and even heard. The fracture was situated at the junction of the ramus of the pubis with the ischium, where a ridge could be clearly felt. She also complained much of the lower part of the back, particularly on the right side, which I could not examine with any accuracy, from the impossibility of raising her. Both the urine and fæces passed voluntarily, and there was no loss of sensibility of the extremities. Her pulse was 100, and rather hard. Some aperient medicine had been given her in the morning, which had freely operated.

The immediate object being to support the fractured parts, and it being quite impossible to pass a roller round the patient, I had constructed a bandage of wide woollen girth web, with buckles and straps placed closely. This was drawn under

the pelvis by means of pieces of tape attached to the bandages, which were insinuated by a plate of elastic steel, and then buckled as tight as it could be borne; with directions to tighten it still more as the bandage should stretch. Two straps from the back part were passed between the thighs, and buckled to the anterior portion of the belt, to retain it in its situation. Pads were also placed on each side the pubis. Notwithstanding all the precaution and gentleness used, several severe spasms occurred, which displaced the fractured bones, with great increase of pain. I directed that her diet should be of the lowest description; and, in the event of any recurrence of pain or tension of the abdomen, that she should be immediately bled. She was also to take some antimony in saline mixture, and an opiate when necessary.

I visited my patient again on the 10th, and learned that she had passed two good nights; that it had been found necessary to bleed her twice. The blood abstracted was much buffed. There was, however, still some tenderness of the abdomen. The bowels not having been relieved since I last saw her, she was again directed to take some aperient medicine. Her pulse was still 98, and rather hard. On the 12th, she continued to improve, and had been again bled.

To enable her to raise herself, I passed under her a piece of girth web, which was attached to a

set of double pullies, and the other extremity fixed to the ceiling of the room. She was thus enabled to raise herself so as to relieve the pressure on the back, and to allow a bed pan to be placed under her; and by these means her sufferings were very much alleviated.

I visited this lady several times afterwards, but, as she continued to mend, I declined any further attendance. After an interval of between five and six weeks, she was able to walk about with assistance, and eventually recovered.

The belt I employed in this case had, I think, many advantages over a roller, as usually recommended; for the pressure is more equally applied, and it can not only be tightened at pleasure without moving the patient, but may be readily removed. The active antiphlogistic plan of treatment I think materially contributed to her recovery.

CASE
OF
SUDDEN DEATH,
IN WHICH A
HYDATID WAS FOUND IN THE SUBSTANCE
OF THE HEART.

By DAVID PRICE, Esq.

COMMUNICATED IN A LETTER TO
THE PRESIDENT.

Read Jan. 20, 1820.

DEAR SIR,

THE following are the only particulars I am able to collect of the case of hydatid of the heart, the preparation of which I sent to you.

James Philpot, the subject of this case, was ten years of age, well grown, and of a remarkably good disposition. His parents are in very indigent circumstances, and have had altogether fourteen children; twelve of whom they have buried. I was desirous of knowing the diseases of which so

great a proportion of their children had died ; and found that two had died with croup, three of small pox, one of measles, one through accident, and four of infantile diseases ; the two surviving are of an adult age, and are robust and healthy.

The boy in question had but one attack of the affection he then laboured under.

He was of a cheerful disposition, and always entered with alacrity into all the amusements of children of his age. He never complained of languor or fatigue, neither did he experience the smallest inconvenience from the exertion of going quickly up stairs. He never had any difficulty of breathing, nor did he ever complain of palpitation.

He was in the habit of going daily to the parochial charity school, and, on the morning of the day he died, he appeared there with dirty hands. The master sent him home, requesting that his mother would wash him. This request, it appears, was not complied with, and, in the afternoon, he returned again with unwashed hands. The master ordered one of the boys to take him into the yard and wash him ; but the boy exceeded his instructions, and instead of simply washing him as directed, took off his shirt and splashed him with cold water. The poor fellow, however, seemed very well after this ablution, and left school with the rest of the boys, in apparent good health and spirits. When

he had proceeded a short distance from the school-house, he suddenly fell on his hands and knees on the pavement; he got up and leaned on a window-frame; presently he raised himself and fell backwards. A person went up to him, and asked what was the matter? he answered "for God's sake take me home." My assistant saw him a few minutes after, but he was quite dead.

Blame having been imputed to the master, by people in the neighbourhood, the trustees of the school became anxious for a full investigation of all the circumstances which preceded the boy's death, and requested that I would examine the body before the coroner held his inquest, to ascertain if there was any natural cause for such a sudden dissolution. In compliance with the instructions which I received, I minutely examined the brain, the abdominal viscera, and the contents of the thorax; and I found every part perfectly healthy with the exception of the heart and the portion of pericardium, which was adhering to it. In the latter were about two ounces of dark-coloured fluid. In the muscular substance of the heart was found a large hydatid.

I am, Dear Sir, .

Your obliged and obedient Servant,

DAVID PRICE.

9, Upper East Smithfield.

TO ASTLEY COOPER, ESQ.

A CASE

OF

ANEURISM OF THE CAROTID ARTERY,

By HENRY COATES, Esq.

MEMBER OF THE ROYAL COLLEGE OF SURGEONS, AND SURGEON TO THE
SALISBURY GENERAL INFIRMARY.

COMMUNICATED BY MR. EARLE.

Read June 20, 1820.

I AM induced to lay the particulars of the following case before the Medical and Chirurgical Society, as it relates to, I believe, the largest aneurism of the carotid, in which a ligature has been applied to that artery in this country. Though the patient did not eventually recover, yet as he lived sufficiently long to prove the success of the operation, and as he may be considered to have died from causes in a great measure independent of it, I trust the peculiar features of the case may be deemed worthy of the attention of future operators.

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It has, in fact, been truly observed, that much

may be learned from the relation of unsuccessful cases; and if what I have to detail should be thought useful, I shall be amply gratified.

Thomas Turner, forty-one years of age, of Coombe Bisset, in the county of Wilts, by trade a sawyer, had served fourteen years in a dragoon regiment, and for the last eighteen months, as an agricultural labourer, was admitted as patient in the Salisbury General Infirmary, the 16th December, 1815, with an aneurismal tumor of the left carotid, which measured five inches and a half in length, and four in depth. It extended beyond the mastoid process, throwing up, and in part hiding the ear, and it covered the edge of the lower maxilla, to within half an inch of the chin, where it became conical.

One portion was inflamed to about an inch in diameter, in the centre of which was a small eschar, ulceration having commenced. The skin at this point was extremely thin and compressible, and the pulsation very strong. From hence it gradually enlarged, and reached to within an inch of the clavicle, remaining wide to the posterior edge. There was a considerable depression obliquely in the direction of the mastoideus muscle*. The contents of the tumor were obvi-

* The annexed engraving will give a more perfect idea of the size and shape of the tumor, than any description. For the draw-



From a sketch by J. R. Bergs

Engraved by Gou

Thomas Turner aetat: 41.

Aneurism of the Carotid Artery

ously fluid. The pulsation was very strong, and observable at some distance. The patient complained of constant pain in the head, from the beating (as he expressed it) of the tumor. By pressure the tumor might be partly emptied, but it produced an increase of pain in the head. In pressing the posterior part, the blood was felt to thrill with considerable force into the aneurismal sac. He could not sit up long without great increase of his sufferings, and he had in consequence been confined to his bed, the last six weeks. Since the tumor had attained so great a magnitude, he had been troubled with a slight cough. From the pressure on the trachea and œsophagus, he breathed and swallowed with difficulty, and expectorated profusely, he thought, to the quantity of nearly three pints of mucus in the course of twenty-four hours. Indeed, the accumulation of mucus was so abundant during sleep, that he could rest only at short intervals.

The pupil of the left eye was much more contracted than that of the right, and the vision on that side was imperfect. His articulation also was

ing, I am indebted to the ingenuity of my pupil Mr. J. H. Boyce, who took the sketch immediately after the admission of the patient, when it was acknowledged to be a very correct representation. The finished drawing for the engraving was made from the original sketch, by Mr. J. Gray, a young artist of great merit.

indistinct. His pulse was at 90, full and strong, his tongue white, and bowels costive.

His general health had hitherto been good. The only account he gave of his case was, that in the preceding June he had discovered a small throbbing swelling, about the size of a hazel nut, on the outside of his neck, near the angle of the jaw, which gave way on pressure. Conceiving it to be a glandular enlargement, arising from cold, and having as he thought, had similar affections before, he took little notice of it. The swelling increasing, he consulted several practitioners, who not understanding the nature of the case, recommended various applications, which were ill calculated to afford relief.

On his admission to the hospital, judging it of consequence to lower the circulation, he was directed to lose ten ounces of blood, and to take a weak infusion of digitalis.

He was bled again on the 19th and 21st, to the quantity of six ounces. By this treatment the strength and frequency of his pulse were much diminished, being then only 76 and soft. He said he felt more comfortable, and had less pain in his head. The tumor was much improved in appearance, and was certainly diminished in size at the anterior portion, where the inflammation had entirely subsided, and the eschar dried and peeled off.

He continued his medicines in reduced quantities till the 25th, when I was called to him, in consequence of an attack of vertigo and vomiting. He also complained of great pain in the tumor, which was tender to the touch. This he said had been the case since the preceding day, when it had been examined by several surgeons, who from curiosity had called to see him.

26th. Passed a very indifferent night. The sickness continued, though he did not vomit so frequently. Two doses of five drops of nitric acid in water completely relieved him. He remained as well as before, till the 29th, when the symptoms returned with increased violence: He was directed again to take the nitric acid, but without effect; he complained of increase of pain in the tumor and in his head. I ascribe these symptoms to the pressure just alluded to, as he stated it to have been considerable at the time, and referred his pain and subsequent sufferings to that period, and he had not taken the digitalis since the 24th. He was ordered a grain of solid opium in the evening, which quieted his stomach, and he slept an hour, but awoke with pain in his head.

30th. No return of sickness. The bowels were evacuated by two drachms of carbonated magnesia.

Jan. 3d. As the application of a ligature on the trunk of the artery presented the only means of

saving the poor man's life, and as it afforded him a chance of recovery, I determined to resort to this expedient. The patient being seated in a chair, with his head supported by assistants, and the chin in a line with the sternum, I made an incision, commencing on the base of the tumor, near the posterior edge of the mastoideus, and terminating at the clavicle, about an inch and half in length. It was continued to the same distance, in a line with the clavicle towards the shoulder. The head was then turned to the left shoulder, and the muscle was detached from its cellular union, as well as some of the fibres at its insertion into the clavicle. The divided parts were held separate by two blunt hooks, the tumor drawn upwards, and the dissection continued down to the sheath of the artery, which from the pressure of the aneurismal sac, lay very deep. This was attended with much difficulty, in consequence of the small space which I could obtain to reach the vessel. The jugular vein presented no obstruction, as in the case recorded by Mr. Astley Cooper, the return of blood being stopped by the pressure of the tumor.

The sheath of the artery being opened, a moderately sized ligature of waxed thread was passed under it, by an aneurismal needle, and tied. The pulsation in the tumor instantly ceased, and the patient grew faint, but he soon recovered. The wound was drawn together by straps of adhesive

plaster, and he was placed in bed. He however continued faint for some minutes, but afterwards became composed. Scarcely an ounce of blood was lost during the operation. He was ordered to take some gruel.

4 P. M. He remained tranquil; pulse 90. At 8, I was summoned in consequence of what was considered as a slight convulsion. He attempted to get out of bed and take off the dressing. I believe it arose from a sense of suffocation, occasioned by the difficulty of separating the mucus from the trachea. He was directed to take immediately 45 drops of tincture of opium, and two drachms were to be administered in a common enema. Directions were given to the house apothecary, Mr. G. Langstaff, in case of any increase of circulation, to take blood from the arm.

4th. It was reported that the pulse at 10 o'clock rose to 120 in a minute, full and hard, and that according to my directions he had been bled from a large orifice, which produced syncope. He soon recovered, and was much relieved. Passed afterwards a good night, and slept some time. His pulse is 90, and soft, and tongue rather white. Not having had any evacuation from the bowels, since the operation, a soap enema was immediately injected. To take a saline draught, with antimonial solution, every two hours.

10 P. M. pulse 85, to which it had sunk soon after the enema, which brought away a quantity of hardened fæces. Passed a tranquil day.

5th. Passed the night without any unfavourable symptom. Pulse 90, but rather feeble. The mixture continued, and mutton broth ordered for his diet.

He complains of slight pain in his neck, and in the tumor. To take a castor oil draught.

6th. Passed a tolerable night. Pulse 80. Tongue clean, the oil operated early in the morning. Complains of slight pain in the crown, and left side of the head. The wound examined for the second time. Suppuration had commenced, and it presented a favourable appearance. It was dressed as at first, and his medicines were continued.

10 P. M. Complains of increased pain in his head. Pulse still at 80, he is very restless and irritable—ordered a draught with 25 drops of tincture of opium, which had the effect of relieving the pain and procuring sleep. For the three following nights the opiate was repeated, and costiveness obviated by purgatives.

9th. Passed the best night since the operation. Pulse 80 and soft. The wound was dressed, looked extremely healthy, with a free suppuration.

11th. The discharge is lessened. The aneurismal tumor diminished, I think to nearly half the original size. The contents of the sac remain fluid, and the coats flaccid. The shape is materially altered; the anterior conical end having flattened and sunk lower, as well as the part near the ear.

12th. The wound dressed. The discharge diminishes, some meat allowed at the wish of the patient.

13th & 14th. Dressed. Appears much better, passes good nights, and seems free from all apprehension. The contracted pupil of the left eye has dilated to nearly its natural diameter, is become more sensible to light, and he thinks he can see better with that eye. The tumor much reduced within the last three days.

15th & 16th. Dressed. The discharge diminished, the wound looking very healthy. His pulse has been for some days, and still remains steady at 80. His appetite improved. The expectoration much lessened, and the tumor diminished. He sat up to day for the first time upwards of an hour. The anodyne draught continued.

21st. The tumor considered by several gentlemen who have seen him, to be diminished, at least two-thirds. His health is daily improving. Sat up nearly two hours the last two days.

23d. The discharge much diminished. The pupil of the left eye nearly equal in diameter to that of the right, his vision continues to improve. He daily sits up, but cannot exceed two hours without fatigue and headach.

Feb. 3d. He was allowed to walk the garden for the second time, it being a warm mild morning. He did not however remain many minutes, as he found himself chilly. The wound looks healthy ; but the granulations flabby.

4th. Has passed a very uncomfortable night, is feverish. His pulse 95. Complains of great uneasiness in the trachea. His cough very troublesome. Great difficulty in separating the mucus. Directed to take small quantities of oxymel of squill, in warm water, which relieved him.

5th. Passed a good night, coughed very little ; has less fever ; pulse 90. The neck on both sides much swollen, the aneurismal tumor greatly enlarged, and tender to the touch ; a general blush of inflammation on both sides of the neck, particularly on the left. Complains of much pain in his throat, but none in the tumor. Eight leeches to be immediately applied, and to take four grains of calomel. The bleeding from the leeches to be encouraged, and afterwards a cloth wet with the acetate of ammonia to be laid over the neck.

8 P. M. The leech-bites bleed profusely, and he had one copious evacuation from the bowels. The tumefaction has on the whole diminished. He seems anxious and alarmed. Expectorates rather more freely. To take a saline draught, with minute quantities of tartrate of antimony, every three hours. Pulse 95. The mixture produced slight nausea, and moisture on the skin. The enlargement of the neck remains nearly the same. Still complains of his throat, though not so painful. Has slept at intervals this afternoon. To continue his mixture less frequently, with four drops of tincture of digitalis in each dose, and to take a saline draught, with eight drops of the same tincture, and twenty of tincture of opium; to gargle his throat with infusion of roses.

6th. His pulse remaining hard. He was bled about 11 o'clock to six ounces. Blood buffy. Pulse 80. Afterwards slept at intervals. His bowels have not been relieved. The gargle he thinks, eased his throat. The tumor soft at its anterior part, and an increased appearance of inflammation, as well as evident fluctuation. Pressure gave him pain. He breathes easier.

9 P. M. Pulse 90. The inflammatory appearance of the skin has much increased. The size of the tumor is nearly the same, and the anterior part still soft. I determined to discharge the contents, and accordingly made an opening in the

prominent part, from which issued about seven ounces of fetid blood mixed with pus. He breathed easier immediately, and was greatly relieved.

7th. Passed a good night. Pulse 85. A copious discharge from the tumor. The bowels copiously evacuated by a dose of calomel followed by an enema.

8th. Passed a good night. To take ʒiiss of decoction of cascarilla thrice a-day.

13th. Pulse 76 and languid, the discharge considerable from both wounds. To have a gill of wine in the course of the day.

14th to 20th. Passed good days, the discharge still great. Had night sweats. To continue his wine, and to have ʒiiss of infusion of cinchona, acidulated with sulphuric acid. Had walked about the house several days. Says he feels comfortable and in spirits.

21st. Walked in the garden, by which he was refreshed. The discharge from the sac much diminished. Dressed as usual.

22d. Had several motions yesterday, otherwise going on favourably. To omit his medicines, but to continue his wine.

Nothing particular occurred, till the 25th, when I found him rather feverish, and his tongue white. These symptoms were removed by a dose of calomel, and the discontinuance of the wine.

27th. 3 A. M. I was called up, in great haste, in consequence of an hæmorrhage from his neck. I soon reached the house, and learned that he had lost about six ounces of florid blood, which on examination I found had issued from the opening in the aneurismal sac. The hæmorrhage had soon ceased, and there was not the least oozing when I saw him. A compress of lint applied near the opening, and retained by adhesive straps, and a roller.

12 M. His pulse had risen to 100 and hard, his tongue rather white. He was uneasy. A slight stain of blood on the dressings, and a few drops escaped when they were removed. His neck was rather enlarged and tender. The wound where the ligature was tied looked healthy, and had healed rapidly, the last week. To take two grains of calomel immediately. An embrocation of the acetated ammonia, with spirit, to be applied to the neck, and frequently renewed.—His pulse continuing hard towards the evening, he was bled. The blood was much buffed. His pulse was lowered to 90, and was softer. The calomel produced two evacuations. Complained of pain in the head and throat, and a choaking sensation. On examination

I found both the tonsils enlarged. Has coughed, and the mucus in the throat distressed him much. No hæmorrhage had occurred, but the dressings were much discoloured by a bloody discharge, and some coagula were pressed out of the wound. Is very uneasy and low spirited. Directed to gargle his throat frequently with infusion of roses.

28th. 1 P. M. Passed an indifferent night. Complaints of pain. Pulse 98. No return of hæmorrhage, though a small quantity of blood oozed from the wound. The tonsils less inflamed. Is very low.

29th. Being absent, I did not see him till the 29th at 5 P. M., when I found that he had lost about four ounces of blood from the tumor soon after I left him, that the hæmorrhage returned about 5 P. M. to near six ounces, and that a small quantity issued at seven o'clock this morning. The tumor hard and tender. Six leeches had been applied this morning, which bled freely. Pulse 110, and weak. The tumor hard and painful on pressure. Dark coloured fetid blood escaped from the opening. Much pain in the back of the neck. Expectorates a large quantity of mucus, and is much teased by a short cough. The tonsils less inflamed, but enlarged. The lower wound healed rapidly the last two days. Has taken very little food. He lost a small quantity of blood in the evening, and was very languid. Pulse 118 and

weak. Complains of pain in the upper and back part of the tumor which is hard, except near the opening, and very tender. The right tonsil is reduced to its natural size, the left still much enlarged, and seems disposed to suppurate. He has expectorated very freely, and has dozed at intervals all the afternoon. To take a grain of opium, and as he had no evacuation since yesterday, a castor oil draught early in the morning.

March 1st. 12 M. Had passed a very indifferent night. A large quantity of fetid coagula discharged by pressure from the tumor. Pulse 100, and small. Tongue very foul. The edges of the wound languid. To take ʒiiss of decoction of cinchona with tincture and acid, every six hours. His throat is much less inflamed, and he swallows with less difficulty. The skin covering the sac is discoloured. The lower wound much healed. A poultice to be applied over the tumor.

2d. 12 M. Has passed a good night. Pulse 85, and soft. Tongue much cleaner. Is in better spirits, and has relished some cocoa for his breakfast. A purulent discharge, in considerable quantity and tinged with blood, was pressed from the wound.

3 P. M. I was summoned in haste as the hæmorrhage had returned. The attendants stated, that they believed he had lost a pint of blood,

which was evidently arterial, and was said to have been thrown from the opening in the sac, to some distance. He immediately fainted, when the bleeding ceased. I found him recovered from his fainting fit, pale and very weak, his pulse small and quick.

8 P. M. Pulse 100; very thirsty. Had slept a few minutes twice in the course of the evening. Had taken half a tea cup of cocoa, and a little small beer, for which he had expressed a wish. No hæmorrhage since 3 o'clock, but he still feels faint and very languid.

3d. 11 A. M. Has passed a very restless night, he dozed occasionally. Pulse 98. Tongue foul. Is very languid. No hæmorrhage since yesterday, but a quantity of bloody pus discharged from the sac. In the evening the tongue had got cleaner, but he was still very languid, and had not slept. The purulent discharge was discoloured and offensive. An opiate ordered.

4th. 11 A. M. Passed a very good night. Pulse 86, and soft. The discharge much diminished, but purulent and tinged with blood. More composed and sufficiently strong to sit up in bed.

From the 5th to the 9th he went on well. The discharge from both wounds continued to diminish, and no hæmorrhage took place.

9th. Pulse 85, and soft. He is much improved in every respect, and in good spirits. The lower wound has healed in the centre and upper part. A little blood has escaped from the sac.

12th. Return of hæmorrhage about 11 last night, which recurred about 3 o'clock in the morning. He was supposed to have lost near ten ounces. It ceased, and a small quantity of bloody discharge escaped from the wound in the sac. The opening much closed. I therefore enlarged it.

13th. Passed a very bad night. Complains of great pain in his neck. Pulse 120, and small. On removing the dressings, a copious bloody discharge escaped from the sac. He was afterwards easier, but very weak and languid.

10 P. M. No return of hæmorrhage, but he is extremely reduced. His pulse is small and quick. His tongue foul, and his fauces covered with a thick glutinous mucus, which he has the greatest difficulty to throw off. The sac swollen and full of coagula.

14th. The report this morning was bad. I found him pale and languid with a small quick pulse, great difficulty of swallowing, anxiety with hiccough, and encreased exertion in discharging the mucus. He has taken scarcely any food. He continued to sink throughout

the day, and expired about eight o'clock in the evening.

March 15th. Dissection.

The body was examined sixteen hours after death. The wound at which the ligature was applied, was nearly healed. The sternum was removed, the left cavicle thrown back, and the course of the carotid traced upwards. The ligature had been tied on the artery an inch and an half above its origin. The artery itself was impervious for about an inch, and seemed to be converted into a solid incompressible substance. The skin covering the tumor being dissected back, and its upper edge detached from the lower maxilla, a branch of an artery was divided. It readily received a probe, which passed into the cavity of the sac.

The arch of the aorta being divided, injecting pipes were introduced into both carotids. Warm water was thrown with some force, and the left was found perfectly impervious.

The dissection was then continued, and the whole mass removed, including the trachea, œsophagus, and tongue. On detaching the tumor from the spine, it was found that the posterior part of the sac, adhered to the bodies of four of the vertebral bones, and could not be removed with-

out making an opening into the sac, on doing which a large quantity of coagula escaped. A part of the coagulable lymph lining the sac, was organized.

The lungs were perfectly healthy in structure, though slight adhesions to the pleura were observed in two points. The viscera of the abdomen were also quite sound, and no other aneurismal enlargement of any part of the arterial system could be discovered.

Reviewing the circumstances of this case, it may be a question whether the contents of the aneurismal sac should not have been earlier discharged. It ~~was~~ indeed originally my intention to do so, had not the absorption proceeded with rapidity, so early after the operation. I think I would adopt this course should a similar case occur to me; for it appears that the coagula produced the severe symptoms of local inflammation, which caused the enlargement of the anastomosing vessels, and subsequent hæmorrhage. But I had a difficult and delicate course to steer, with few examples for my guidance, and the exact limit to which an operator may proceed in such unusual cases, can be determined only by successive experiments.

CASE

OF

MALFORMATION OF THE HEART,

By GEORGE GREGORY, M.D.

SENIOR PHYSICIAN TO THE ST. GEORGE'S AND ST. JAMES'S DISPENSARY.

Read Feb. 29, 1820.

PIERRE Dornier, 18 years of age, died in the Hospital of Saint Pierre at Bruxelles, on the 28th June, 1817, and his body was examined on the morning of the 30th, in presence of Dr. Caroly, M. Lauthier, myself, and many of the pupils of the hospital.

The lungs were found adhering every where very firmly to the pleura costalis and pericardium. Tubercles and vomicae were scattered through their substance. The cavity of the pericardium contained four ounces of serum. The heart was very firm, and of a natural size. The aorta and pulmonary artery arose from the right ventricle. The septum ventriculorum, at its base, was wanting for an extent somewhat larger than the diameter of the aorta. The pulmonary artery was not much

smaller than natural, and at its origin was surrounded by some cartilaginous-like fibres, between which and the semilunar valve a small sac was formed. It was observed that the opening in the septum ventriculorum corresponded so exactly with the situation of the aorta at its origin, that the contractions of the left ventricle must have propelled its blood almost entirely into that vessel, while the blood of the right ventricle might have been divided equally between the two great arteries. So free, however, was the communication of the ventricles with each other, that in the diastole of the heart, it is presumable that the venous and arterial blood were ultimately mixed.

This man had been from birth of a blue colour. At times he appeared, by the testimony of one of his relations with whom I conversed, to have been almost black. His breathing was always short, and he could never, at any period of his life, walk far without support. For the last six years, he had been occasionally a patient at one or other of the city hospitals. When I first saw him, which was about a week before his death, he was spitting purulent matter, after hæmoptysis, and evidently in the last stage of consumption. The pulse was quick but regular, the motion of the heart however was very peculiar. He was always thin and infirm, but had grown to an average height.

It cannot, I think, be undeserving of notice, that with so remarkable a condition of the circulating system, this young man should have attained the age of 18 years, and ultimately died of a disease not apparently connected with so uncommon a deviation from ordinary structure. The case may further be received as an illustration of that principle in pathology first laid down, I believe, by Dr. Farre, that the source of danger in these cases of malformed heart, is the comparatively small size of the pulmonary artery, rather than the mere circumstance of the mixture of venous and arterial blood in the same vessel.

A CASE
OF
CHOREA,

SUCCESSFULLY TREATED BY

ARSENIC,

By GEORGE GREGORY, M.D.

SENIOR PHYSICIAN TO THE ST. GEORGE'S AND ST. JAMES'S DISPENSARY.

Read Feb. 29, 1820.

JANE Budd, seven years of age, was admitted a patient of the St. George's and St. James's Dispensary, Dec. 6, 1819, with chorea, which commenced by pain at the top of the head, and unsteadiness of the hands, and had been present five days. The tongue was clean, the pulse regular, and general health good. No cause could be assigned for the disease. Several plans of treatment were tried, but without producing the smallest effect upon the complaint. On the 15th January, when she first came under my own immediate care, the convulsive twitchings of the arm were very frequent and severe. She could hardly articulate, and with diffi-

culty walk alone ; but at the same time, the functions of the stomach and bowels appeared to be unimpaired.

Under these circumstances, I began the exhibition of the liquor arsenicalis, in doses of three, gradually increased to seven drops, three times a-day. On the 21st Jan. the medicine produced sickness, and was therefore omitted until the 24th, when it was resumed in the dose of six drops three times a-day. The disease was now sensibly diminished, and so satisfied was the girl of the benefit she derived from the medicine, that she never failed to ask for it at the regular hour. On the 31st Jan. it again produced sickness, the dose having been increased to eight drops. She was now directed to take a few grains of rhubarb, and on the 7th Feb. was discharged in perfect health.

The effect of the liquor arsenicalis in this case, was shown so speedily and so decisively, that it has impressed me, in conjunction with the cases related by Mr. Salter, in the last volume of the Transactions of this Society, with a very favorable idea of the virtue of arsenic in chorea, when the functions of the stomach and bowels are unimpaired.

ON THE
EFFICACY
OF THE
BARK OF THE POMEGRANATE TREE,
IN
CASES OF TÆNIA,
By P. BRETON, Esq.

SURGEON TO THE RHAMGUR BATTALION IN THE EAST INDIES.

COMMUNICATED BY



DR. ROGET.

Read March 14th, 1820.

HAVING observed in Dr. Fleming's catalogue of Indian medical plants and drugs, that the decoction of the bark of the pomegranate root is ranked as an efficacious remedy for the removal of the tape worm, I had afterwards an opportunity of putting its effects to the fairest test of experiment.

For several days my Kidmutgar complained of symptoms which I conjectured to be those of tænia.

The fact having been subsequently confirmed by the appearance of fragments of the worm, I immediately determined on making personal trial of the remedy prescribed in Dr. Fleming's book.

Accordingly I prepared a decoction of the fresh bark of the root of the pomegranate tree, by boiling two ounces of it in a pint and a half of water, to three-fourths of a pint, and when cold, I administered a glassful of it at 8 A. M. repeating that quantity every half hour, till four doses were taken. About an hour after the last dose, an entire *tænia* was voided alive, measuring nearly eight feet in length.



It may be worthy of remark, that in this instance, the decoction occasioned only a very trifling nausea ; notwithstanding which, it had the effect of dislodging and bringing away the worm entire at the expiration of three hours from the first taking of this remedy.

I transmitted to Dr. Fleming an account of this case, with the view of adding one to the number already communicated to him by others, in proof of the efficacy of the decoction, when prepared with a smaller quantity of the bark than is usually prescribed. This is certainly a fortunate circumstance, as it obviates any derangement of the system, or any unpleasant sensation what-

ever, excepting only a very trifling degree of nausea.

CASE II.

May 3, 1811. Gheesa, a native, says that, for a long time he had experienced sensations which induced him to believe he was troubled with worms, and for the last four months he had actually been in the habit of passing fragments of them.

The species of worms of which he complained, having been ascertained, I thought it a fair opportunity of trying the effect of the *dried* bark of the root of the pomegranate tree ; and accordingly I prepared a decoction, by boiling two ounces of it in a pint and a half of water to three-fourths of a pint, of which I administered a wine glassful at 8 A. M., repeating that quantity every half hour, till four doses were taken. About ten o'clock the man complained so much of sickness at stomach, giddiness and uneasy sensations in his bowels, that I was deterred from giving him a fifth dose. About half an hour after 10 he complained of faintness, and vomited a little. A few minutes after 11 A. M. he voided an entire tænia alive, measuring nineteen feet two inches in length. Immediately after passing the worm, he was affected with faintness and universal tremor, and felt sick for several hours after.

This case affords abundant proof of the efficacy of the *dried* bark of the pomegranate root, and of its great activity in removing tænia. It seems also to warrant the conclusion, that the decoction made of two ounces of the *dried* bark is rather too powerful, and that the exhibition of it may, possibly, be attended with some danger. I am therefore of opinion, that a smaller quantity of the *dried* bark would answer the same purpose, without exciting a train of sensations so distressing in themselves. This inference is collaterally supported by the circumstance of the *recent* bark sustaining a considerable diminution of weight by the simple process of drying in the sun, so that by the dissipation of its aqueous or sappy particles, its active powers are condensed and united. To ascertain precisely the difference of weight between the fresh and dried bark, I examined a number of papers, each containing two ounces of the recent bark, taken indiscriminately out of a basket, and found that the medium loss of weight of each paper in drying, amounted to seven drachms.

The patient above-mentioned is a butcher by trade, of a robust constitution, and forty years old. The quantity of decoction given at each dose was two ounces, measured by a graduated glass measure.

CASES III & IV.

May 4th. Peer Bukhs, a boy about seven years old, and Phursand, a boy about ten years old, had passed fragments of *tænia* for upwards of six weeks.

At 8 A. M. they commenced taking one ounce of the decoction of the dried bark of the pomegranate root, (made by boiling one ounce and a half of it in a pint and a half of water, to three-fourths of a pint,) and repeated this quantity every half hour, till six doses were taken, without however any other disagreeable effect, than a trifling sickness at stomach, and a little vomiting three or four times. In consequence of the vomiting, I thought it prudent to suspend a further use of the decoction. At noon, on finding that the children had a good deal recovered from their unpleasant sensations, and conceiving it probable that the remedy would in this instance fail to produce the desired effect, in consequence of the children having rejected their medicine twice or three times immediately after taking it, I determined on preparing a little more of the decoction, by boiling half an ounce of the dried bark, in twelve ounces of water, to six ounces. This I administered as before, in doses of half an ounce to each of the boys, at 1 P. M., at half past one, and at 2 P. M. Shortly after, they both complained of considerable giddi-

ness and faintness, which induced me to desist from a farther repetition of the decoction.

At about 5 P. M. however, or three hours after the last dose, I had the gratification to find, that one of the boys (Peer Bukhs) voided a broad thick tænia, measuring fifteen feet four inches in length; at a little after six, the other boy (Phursand) passed a similar tænia, entire and alive, measuring fourteen feet two inches.

There was so little variation in the external expression of feeling of these two children, and the general effects of the decoction were so similar in both, that for the sake of brevity, I have preferred reciting the two cases together. But it may be observed, that a temporary suspension and renewal of the medicine may be successfully adopted under similar circumstances.

CASE V.

May 5th. Jhamoo, a boy aged nine years commenced at 8 A. M. taking twenty grains of the pulverized bark of the pomegranate root, mixed with one ounce of water, repeating this quantity every hour, till five doses were taken. At forty minutes after twelve, an entire tænia was brought away alive, measuring nine feet eight inches in length.

CASE VI.

May 5th. Jumbee, a girl ten years old, took at 8 A. M. the same quantity of the pulverized bark mixed with an ounce of cold water, and repeated the dose every hour till noon. At 24 minutes after 1 P. M. a *tænia lata* was discharged alive, four feet nine inches long. The next morning at about 9 A. M. an entire *tænia solium* was voided dead, measuring nine feet ten inches in length.

In these two instances a little nausea only was occasioned, and three or four copious motions in the course of the forenoon.

These two cases furnished positive proofs, that the powder of the bark of the pomegranate root is equally efficacious with the decoction of it, either in its dried or recent form. This is really a fortunate discovery, because it seems to operate mildly when administered in this form, and is of great importance with reference to economy, for in these two last cases, only ten scruples of the pulverized bark were expended, whereas, if the decoction had been prepared, twelve drachms of the bark would have been consumed.

CASE VII.

May 6th. Soobhun, aged 22, who had for many years continued to pass small portions of the tape

worm, took at 8 A. M. two scruples of the powdered bark of the pomegranate root, mixed with two ounces of water, and repeated that quantity every hour, till six doses were taken without any other effect than trivial nausea. At a little after 4 P. M. he voided a *tænia lata* alive, six feet seven inches long.

CASE VIII.

May 8th. Bundoo, aged 30, who had passed fragments of the worm for upwards of five years, took at 8 A. M. two scruples of the pulverized bark mixed with two ounces of water, and repeated the dose every half hour till 11 A. M., when it was suspended in consequence of a little sickness at stomach and giddiness. At a little after one, an entire *tænia* was expelled, which measured fifteen feet three inches in length.

In this case I exhibited the powder every half hour, with the view of ascertaining whether it would cause a more speedy expulsion of the worm, than when administered every hour. The fact is verified in this instance, but no conclusive judgment can be formed from a solitary case.

Having procured live *tæniæ* (as well as fragments of them which had been passed previously to the ex-

hibition of medicine) I was very desirous of witnessing the effect of the decoction of the pomegranate root, and also of a mixture of the powder of it with water, when applied in immediate contract with them. The instant they were plunged in these preparations, they writhed, and otherwise manifested great pain, and died in the space of five minutes. In plain water these worms will live several hours after expulsion.

ON THE
EFFICACY
*
OF THE
BARK OF THE SWIETENIA FEBRIFUGA,

AS A

SUBSTITUTE FOR THAT OF THE CINCHONA,

By P. BRETON, Esq.

ASSISTANT SURGEON TO THE RHAMGHUR BATTALION, IN THE
EAST INDIES.

COMMUNICATED BY

DR. ROGET.

Read March 14, 1820.

I FIRST became acquainted with the virtues of the bark of the swietenia febrifuga, in the month of August 1803, from the report of Dr. James Campbell, apothecary general, who obligingly presented me with 20lbs. of it for trial. I found it so effectually to answer the purposes of cinchona, that I was induced to request a further supply, which Dr. Campbell, with his usual goodness, did me the favor to grant without hesitation. While in the province of Cuttuck, I made every search for the

swietenia bark, but without success. On my arrival at Hazareebagh in 1805, to assume the medical charge of the Rhamghur battalion, I expressed to lieut. Broughton, who then commanded the corps, and was well acquainted with the bark, my wish to search for it in the mountains, in the vicinity of our cantonments. I accordingly commenced my research, but notwithstanding all my exertions, labour and expense, I had not the good fortune to discover the tree on that occasion, nor had I any further opportunity of doing so, till the corps was employed on actual service in 1808, in a very wild and dreary country, on the borders of Singboom, bounded on all sides by immense chains of mountains.

In this country it was, that I was fortunate enough for the first time to discover the tree, but as I could only get information of the existence of a very few, (although a number of natives were employed to scour the jungles in quest of them,) I concluded that the plant was extremely scarce, and that I had no prospect of succeeding in the object of my wishes. I nevertheless persisted in my pursuit, till the return of the corps to cantonments, but still with no better success than before. At length, despairing of being ever able to meet with these trees in sufficient abundance, to answer any useful purpose, I abandoned my research altogether.

On the corps being again ordered to take the field, in Dec. 1808, but in a different direction, I resolved to make another effort to accomplish the object of my wishes. It was not, however, till the month of June 1809, that my labours were amply rewarded by the discovering of a forest of these trees, in the vicinity of Omedurdah, at the distance of about twenty kos from the cantonment of Hazareebagh.

From the trees I discovered in 1808, I procured a sufficient quantity of the bark, to enable me to institute a series of experiments, and the success that has attended my labours and exertions, has exceeded my most sanguine expectations. In a number of cases of confirmed remittent bilious fevers, (commonly called jungle fever,) I have put this bark to the fairest possible test ; and as success was uniformly the result of my repeated trials, I think I am warranted in concluding it to be an efficient substitute for the Peruvian bark. In common intermittent fevers, I have employed this bark very extensively, and with invariable success. I have also put this drug to the test of trial in three cases of gangrene and mortification, and in a case of suppurated liver ; but as it was accompanied with auxiliaries, (such as laudanum and poultices of milk bread and keem leaves boiled together,) I cannot speak so positively of its actual efficacy in these instances. The uniform result, however, of

so many experiments satisfied my own mind, that the swietenia febrifuga answers every purpose of Peruvian bark, in allaying irritability, and restoring strength. In medicine, more than in any other branch of philosophy, it is extremely difficult to unfold, with precision, the causes which operate in producing alterations, either in healthy or morbid bodies, and I am well aware, that effects are often ascribed to medicine which belong exclusively to nature. But I trust I shall not be accused of being visionary or enthusiastic, when I avow my own conviction, after having long employed this bark in every case where cinchona is indicated, that it forms a completely efficient substitute for the American drug, and that time alone is required to extend that general conviction of its efficacy, which every succeeding experiment will assuredly tend to impress.

If this bark shall be ultimately proved, (as I am almost certain it will,) equal in effect to the cinchona, the benefit that will result from it to Great Britain, and her vast dependencies in the East, especially in the present precarious state of our actual relations with America, will be incalculable.

Hazareebagh, June 4, 1811.

CASE I.

One of the company's mahouts at this station, while employed in pursuit of the wild elephants that visited the cantonments of Hazareebagh, in October 1809, and were subsequently killed there, was attacked by one of those animals, and thrown to the ground with such violence, that his leg was badly fractured, about four or five inches above the ankle joint. Being myself at Shehur Ghantly at the time of the accident, I was of course precluded from rendering the man any assistance. The fracture, however, was reduced by my native doctors in the usual way; but on my return to Hazareebagh, I was much distressed at finding the poor man's foot actually mortifying, and his health declining fast. In this stage of his condition, amputation would have exposed his life to certain hazard, without any apparent prospect of success to counterbalance the risk. My attention was therefore exclusively directed to what is the last resource in similar cases, the causing a separation of the dead from the living part, by inducing a healthy action in his general system. I accordingly lost no time in commencing with the swietenia febrifuga, combined with opium, and persevered in its use without intermission, till a separation actually took place without the aid of the knife, the foot, including the processes forming the inner and outer ankle, having fallen off from the tibia

and fibula by the mere vis medicatrix naturæ. In other words, nature performed the necessary operation on this limb, leaving to my further management a well-conditioned stump, which was afterwards so completely healed, as to admit of the man's walking about with the aid of a wooden substitute for his foot.

It is worthy of observation, that, in this case, mortification had actually commenced, and was making rapid progress when I first examined the fractured limb. The man's health was at the same time so much impaired, that he appeared to me to be sinking, when I began to exhibit the swietenia febrifuga.

From these plain and visible facts, combined with a consideration of the bad habit of body generally contracted by people of this description, from their debauched mode of living, it appears reasonable to infer, that if the man had been left entirely to nature, he would have lost his life; and that his cure, therefore, may very fairly be ascribed to the virtue of the bark of the swietenia febrifuga.

CASE II.

In the month of October 1810, a hackery driver at the station of Chiltra, in a state of extreme intoxication, fell from his hackery, and by some

means or other so lacerated his scrotum as to cause a protrusion of one of the testes. In this state the unfortunate man must have lain several hours; for it was reported that the accident happened in the morning, and it was not until ten at night that he was brought to the house of Mr. W. Louthier, the then acting register of Ramghur. Being at the time in medical attendance at Mr. Louthier's, I was requested to see the man.

On examining the part injured, I found the inferior portion of the scrotum considerably lacerated, and the testis which protruded through it so much swollen and discoloured, as to render its reduction wholly impracticable. No other alternative appearing to me than that of removing the testis, I accordingly determined at once to perform castration. The operation was performed in the usual way in the presence of Mr. Louthier, and for two days every appearance was favourable. On the third day after the operation, however, I was distressed at observing considerable inflammation, and appearances of incipient gangrene and mortification. The man's health seemed much affected, his pulse became very quick, and in the course of the day symptoms of irritation began to manifest themselves. On observing this unfavourable change, I began to administer opium and the swietenia febrifuga every hour, in as large quantities as the stomach would bear. Poultices of bread and milk and keem leaves mixed together were applied

morning and evening, and every other attention paid that the case seemed to require. After persevering in this course for two days, I had the gratification to see evident marks of healthy action in the part, and a disposition to separation of the dead from the living part. The same course of remedies, however, was persisted in till my mind was relieved of all apprehensions of danger, when they were omitted, and the wound treated as a common ulcer. At the expiration of about three weeks from the day on which the accident happened, this poor fellow recovered sufficiently to admit of his returning to Patna.

When the age of this man is considered, (which I think must have exceeded sixty,) the extreme intoxication he was in nearly a whole day, (for he had not recovered from it when he was brought to Mr. Louthers's bungalow,) and the symptoms that ensued subsequently to the operation, I am induced to allow the swietenia febrifuga its full share in preserving the life of this unfortunate man.

CASE III.

In the month of March 1811, a Sepoy was admitted into the hospital for a venereal complaint. Mercury was administered, and his case treated in the usual manner. For the space of nearly a

month, his venereal symptoms seemed to yield gradually to the influence of mercury; when on a sudden, and without any apparent cause, his bubo (which was very nearly healed) broke out and enlarged considerably, and a dark-coloured slough covered its whole surface. His health was materially affected, his respiration accelerated, his pulse very quick, and symptoms of irritation were manifest. Conceiving that I had no time to lose, I immediately commenced exhibiting the swietenia febrifuga and opium every hour, and applied poultices of bread and milk and keem leaves mixed together. In the course of about 24 hours, I observed an evident change for the better, but continued the use of these remedies till all danger was removed, when I substituted the decoction of the woods and nitric acid. The man is now nearly well, and in all probability will be able to return to his duty in a few days more.

From these three cases, I am induced to place some confidence in the virtue of the swietenia febrifuga; for I doubt whether poultices and opium alone would have sufficed in effecting a cure.

Hazareebagh, June 4th, 1811.

On the 15th June 1811, I was requested to see a dooreeah, or dog-keeper, of Lieutenant Jackson, who was supposed to be ill of a fever.

On examining the man, I found that his complaint was a severe affection of liver, which appeared considerably enlarged and indurated.

Judging from the appearance of the tumefaction in the right epigastric region, and from his symptoms, (which were fever, great pain in his right side increasing considerably by pressure, a hectic kind of cough, difficult respiration, quick and irritable pulse, great debility, and occasional shudders and tremors,) that matter had already begun to form in the liver, I conceived it adviseable to endeavour to promote laudable suppuration, rather than attempt to effect a cure by means of resolution. With this view, therefore, after clearing the primæ viæ, I commenced exhibiting the bark of the swietenia febrifuga in substance, in quantities of about half an ounce to $\frac{1}{2}$ drachms in the course of four and twenty hours, combined with small doses of tincture of opium. This quantity I employed without intermission for ten days, during which poultices of keem leaves were applied on the external tumor morning and evening regularly, with the view of softening the integuments, and assisting in some degree in the suppurative process.

On the 23d of the month, I perceived that the tumor (which was before extremely hard and painful to the slightest touch) had become soft and pulpy.

On the 25th, a fluctuation in the tumor being evident, I lost no time in opening it. The moment the incision was made, an immense quantity of matter escaped, and continued to flow gradually the whole of the day. The former quantity of the swietenia bark was immediately increased to ʒiiss in the 24 hours, and a few drops of laudanum united with each dose of the bark, every other attention being paid that the case seemed to require. The great relief which the poor man experienced from these remedies induced me to persist in their use, till all appearance of danger had ceased, without the aid of any other medicine than occasional laxatives.

A case so decisive as this would appear calculated to remove any doubt that may have been hitherto entertained of the virtues of this bark, since it has obviously performed, in this remarkable instance, precisely the same office which the Peruvian bark would have done had the latter been administered; and as the man has actually recovered from this formidable disease, it may be fairly inferred that his cure was promoted and accelerated by the good effects of the bark of the swietenia febrifuga, in removing irritability, and inducing healthy action.

Hazareebagh, July 23, 1811.

Extract of a Letter from Mr. P. Cochrane, Assistant Surgeon, dated Meerut, 30th January, 1812.

“ I believe I can say, that I have ~~seen~~ the swietenia febrifuga more extensively used than any other surgeon in the country. About the year 1797, when I had charge of the hospitals at Futtighur, Mr. Kennedy, who was an enthusiast in its favour, was doing duty under me. I got up whole wine-chests full of the bark from Chunarghur; and through Mr. Kennedy's zeal, and my encouragement, all the other surgeons attending the hospitals adopted its use, which was continued more or less till I joined the grand army in 1803.

“ Hundreds of cases in which it was prescribed were recorded in the hospital diaries, of which, I am sorry to say, sufficient care was not taken to preserve them. We thought it (all but Kennedy) inferior to good bark; but I can honestly, and from much actual observation, add my testimony to its general utility in most cases where the cinchona would have been thought the best remedy. We thought (from an analysis made of it by the celebrated Dr. Irving) that its quality of astringency predominated, and we, therefore, occasionally combined it with aromatics and bitters.”

Extract of a Letter from J. Robinson, Esq. Assistant Surgeon of the Civil Station of Benares, dated Benares, January 12, 1812.

“ I have been in the habit of using this drug, (the swietenia febrifuga,) both in powder and extract, ever since I came to Benares, largely amongst the poorer natives, and am perfectly convinced of its equal efficacy with the cinchona.”

Mr. M. Cheese, garrison surgeon at Fort William, says, in a letter to Mr. Breton: “ I have given the swietenia febrifuga ever since you were kind enough to favour me with it; and think it preferable to any bark we have now in Calcutta, although I have not ~~had~~ sufficient time to judge of its qualities.”

Extract of a Letter from J. M. Davidson, Esq. Surgeon of the Civil Station of Purneah, dated Purneah, June 23, 1817.

“ I was not quite ignorant of the medicine before receiving your remarks; but these, with the testimony of your correspondents, men of celebrity and experience, has fully confirmed the favourable impression of the utility of this medicine, which

previous exhibition of it had given me. While surgeon of Burdavaun, on a particular occasion of great prevalence of fever, having expended my usual supply of bark, at the suggestion of my friend Mr. Fleming, then judge of the district, I had recourse to the rohun bark *, of which he gave me a supply, with perfect success. The fever was a remittent, &c. After evacuations, I gave the bark in substance and decoction; during the remission I could observe no difference in its effects from the Peruvian bark; but it occurred to me in some cases, that it appeared to be retained in the stomach in substance in *greater* quantities than the bark (cinchona) would have been, probably from the presence of an aromatic principle."

In a letter of a subsequent date, (July 19, 1817,) the same gentleman says, "I have used no Peruvian bark since your kind supply of the rohun came to hand. Its effects are exactly what I could have expected from the Peruvian bark in cases of fevers, remittent and intermittent; and when employed as a tonic in cases of suppuration and debility. I consider that you have conferred an important service on the profession and the community by the introduction of this valuable medicine."

* Rohun is the native name for the swietenia febrifuga.

Extract of a Letter from Dr. Roxburgh, dated Botanic Garden, 29th July, 1811.

“ I return you many thanks for the perusal of the enclosed cases of gangrene and suppuration of the liver. They are fully as much to the point as can possibly be, and correspond very well with the *success I had* with this bark about twenty years ago, when I first discovered the tree, and its virtues. The late Mr. Kennedy, of this medical establishment, chanced to be in Samulcotah, where I then was stationed, and got from me a quantity of the bark, which he brought to Bengal, and used with complete success. He was, I believe, the first person who found the tree in this quarter; and also, I believe, he continued to use the bark in his practice to the time of his death.”

In another letter, Dr. Roxburgh says, “ I presume the best season for collecting the swietenia bark will be, when the sap begins to ascend freely, at which period the bark separates readily. I believe the bark of the small, or rather middling-sized branches, the best for medical purposes, and you may use it as soon as it is sufficiently dry for powdering.” In a subsequent letter, dated July 3, 1811, he mentions the swietenia as having been tried at Batavia, and found highly useful in the fevers of that place.

Extract of a Letter from John Grant, Esq. Assistant Surgeon to the 4th Native Regiment, dated from the Camp at Sumbhulpoor, June 28, 1818.

“ I now daily use the powder of swietenia febrifuga in remittent and quotidian intermittent fevers; and, as far as I can judge, it answers every purpose of Peruvian bark. I am not yet sufficiently acquainted with swietenia to determine positively on its effects; but I declare, upon my honour, that I am strongly inclined to think it sits *easier* on the stomach, and produces less irritation than cinchona. That cinchona, in this country especially, does frequently produce purging, tormina, and even a trifling degree of vertigo, and febrile irritation, I am perfectly convinced of from experience. This may arise from idiosyncrasy, or some change in the component parts of cinchona consequent upon age, decay, damage on the voyage, laying long in store, &c.; and now having a medicine, perfectly at hand, equal to the cinchona, is a great desideratum to this country, situated, as you observe, so far distant from Peru, and subject by some future political change to be deprived of the article altogether.”

Having observed in the Edinburgh Dispensatory, that the extract of the bark of the swietenia febrifuga, which Dr. Roxburgh sent home several years

ago, was not distinguished from the kino of the shops, I have lately been endeavouring to ascertain the nature and degree of their approximation to each other in their respective properties : but the experiments I have recently made with this extract and gum kino, according to Dr. Fothergill's method, have led me to conclude that there is a considerable difference between them. I observe, that the extract of the bark of the *swietenia febrifuga* is intensely bitter, while the kino, on the contrary, possesses no bitterness whatever. The former is obviously less astringent than the latter; and the precipitate formed by the union of a solution of it with sulphate of iron does not seem disposed to concrete in the same manner as the precipitate of gum kino. The extract, when dried and powdered, is not of that brick-dust colour which kino assumes on being pulverized ; neither does it give the same deep red tincture to spirits. It is also by no means so friable, nor of the same gummy nature as the African drug. These several circumstances combined, would naturally suggest the probability of a verbal inadvertency in the Edinburgh Dispensatory, and that the extract from the *wood* of the *swietenia febrifuga* is that which is meant, as being analagous to gum kino, instead of the extract of the bark of that tree.

Dr. Roxburgh states, that the coloured part of the wood of the *swietenia febrifuga* seems as fit to yield catechu as the *mimosa catechu* itself. I have

recently prepared extracts from the wood of both these trees, in the same manner as the natives are described by Mr. Ker to make catechu in this district; and on comparing them with each other, I find that there a striking difference between them. This extract from the swietenia febrifuga is unquestionably more astringent than catechu; and, both in its appearance and actual properties, appears so closely allied to gum kino, that I am fully disposed to believe, it may at all times be substituted for the latter. Now Dr. Lewis observes, that catechu comes nearer to gum kino than any other vegetable substance we are acquainted with, but that it is manifestly less astringent and somewhat different in other respects. It being therefore admitted, that there actually is some analogy between gum kino and catechu; and it being evident, that the extract from the wood of the swietenia febrifuga, while confessedly bearing some analogy to catechu, has a still greater resemblance to gum kino than the catechu itself has, we have strong grounds to presume that this extract may justly be identified with gum kino. Although this gum is *supposed* to exude from incisions made in the trunk of certain trees growing in the interior of Africa, it is still not at all improbable that the preparation of it by the natives there may be similar to that of catechu in this country. It will be seen, by the specimens I have sent to England, that the extract from the *wood* of

the *swietenia febrifuga* and the gum kino bear a closer affinity to each other in every particular than either of them does to catechu, while the extract from the *bark* of the tree differs widely from the whole three. The extract from the wood of the *swietenia* tree glows on a red-hot iron like gum kino, without evincing any tendency to melt. Spirit of wine takes up about an equal quantity of this extract and of kino, and in every other particular also these two substances seem to correspond. If the further investigations of abler men shall establish the fact here presumed, that this extract is identically the gum kino, or at least a species of it, we shall no longer be dependent on Africa for this valuable drug.

In several instances of obstinate diarrhoea, and of disorders arising from laxity, I have employed this extract with great advantage; but my experience of its virtues is yet too limited to admit of my offering any confident opinion on the subject.

Bengal catechu, according to the analysis of Professor Davy, gave, in 200 grains, tannin 97 grains, peculiar extractive matter 73 grains, mucilage 16 grains, residual matter, sand with a small quantity of calcareous and aluminous earths, 14 grains. Now if gum kino and the extract from the wood of the *swietenia febrifuga* were analyzed in a similar way, we should be accurately informed of

the degree of approximation of these three substances with each other, in their chemical combinations and physical properties.

P. BRETON.

The above documents were transmitted to the Society through the hands of Messrs. W. and T. Raikes and Co., of No. 79, London Wall, to whom they had been sent by Mr. Breton, together with specimens of the swietenia febrifuga, in quill, powder, and extract; and also of the bark of the pomegranate tree, the effects of which, as an anthelmintic in tænia, form the subject of the preceding paper.

ON THE
PHYSIOLOGY OF THE EAR,

By JOSEPH SWAN, Esq.

OF LINCOLN.

COMMUNICATED BY

DR. ROGET.

Read April 13, 1820.

SOME time ago the Medical and Chirurgical Society did me the honour to publish in their Transactions a paper of mine, in some points relating to the physiology and pathology of the ear. I at that time endeavoured to prove, that when the meatus auditorius externus is stopped, and a sounding body is applied to the face, &c., sound is not mechanically conveyed to the portio mollis of the seventh pair of nerves; and, likewise, that it was probable, that in fishes the sense of hearing was produced from the nerves spread on the external parts of the head receiving the impressions of sound, and conveying them to the auditory nerves; and that man might hear well in this way, when the mechanism by which sound is usually conveyed to the auditory nerves was imperfect. I supposed,

in consequence, that people born deaf and dumb, and who had no defect in the auditory nerves, might be made to hear through the medium of the facial nerves, and thus have their unfortunate condition in some measure ameliorated. I judged that this might be done, from having observed that dumb people could hear a watch when in contact with the face; and likewise from a case, then related, of a musician, who was enabled to play by having part of the instrument between his teeth. With respect to making the dumb understand various sounds, and thereby enabling them to speak, I could then urge nothing more than probability; but I now, in the following case, have the power of proving how sensible the facial nerves are of the impressions of sound, and that what I thought probable is really practicable.

Elizabeth Nobles, aged thirty-six years, was born with the meatus auditorius externus of each ear imperforate. In the right auricle there is a very slight trace of the meatus auditorius externus, and there appears to be no other part of the auricle, but part of the helix and the lobus. In the left, there is a slight trace of the meatus, but it is only about one-sixteenth part of an inch deep; and in the right it is quite superficial. There is the form of the auricle, but the different eminencies are not distinct, and the communication between the external air and the membranæ tympani, if they exist, is as completely obstructed as it is possible for it to

be. She did not begin to talk at all intelligibly till she was seven years old, and she did not talk tolerably well before she was about twelve. She can now talk so as to be perfectly understood. She can hear perfectly when a person addresses her at the distance of six or seven yards. She cannot hear nearly so well when the person speaking is behind her. She cannot hear a watch unless it be in contact with her face, and not if it be in her mouth, unless it be in contact with some part of it. She herself, and others who have known her, suppose that she hears through the mouth and nose, and collects the meaning of what is said from observing the motion of the speaker's lips. To prove that this is not the case, the circumstance I have related with respect to the watch might suffice; but I made her shut her eyes, and she heard distinctly what I said; as likewise, when both her mouth and nose were quite closed. Putting a cloth over her mouth, and nipping her nose, have made a slight difference now and then; but nothing more than I could suppose would happen from the extent of the face from which the sound was thus kept. I have pressed my fingers on the parts where the *meatus auditorius externus* should have been; but she heard just as well as before. I have put a thick cloth over them, and at the same time pressed it as close as I could, but it made no difference. I stood four feet from her, after having put a linen cloth over her face; and when I addressed her, she heard me distinctly. I

then put over the linen a piece of flannel, and she still heard me. I then put over the flannel a large woollen cloth coat, and asked her several questions, but she could not hear any of them. I removed all the coverings, and used the same words in the same tone, and she told them to me immediately. I made the same experiment another day; but she heard all the questions I asked the more faintly according to the extent of the coverings put on her face. I made the first experiments at her own house, when no one else was present; and the second at my house, after she had walked fast, and before company: and some variation will always exist in these experiments, for it is impossible always to remember the exact tone of voice made use of in them; and some little difference may likewise exist in the coverings. She could hear distinctly tunes played on the piano-forte at the distance of seven or eight feet. I covered her face as in the other experiments, and the sounds were fainter. I pressed on her ears with a cloth, but she heard the tunes just as well. I placed her in a chair near the piano, and covered her face so as to hinder her from hearing so well; I then placed her hand on the piano, and she heard much better. I then tied a silk handkerchief tight round her arm, and she did not hear so well: she heard better again when I loosened it. When her face or teeth are in contact with the piano when any one is playing, the sound is very loud to her. She cannot hear the sounds of bells at a distance,

nor the cathedral clock strike, unless she is very near, although the hammer strikes upon a bell, which is one of the largest in the kingdom, and can be heard at different times at the distance of several miles.

In the case I have related, no means were employed beyond those that are made use of for the instruction of children in general; and no pains were taken to make her understand, as is very generally done in the education of dumb children. It therefore may not be uninteresting to inquire, why this faculty of hearing in dumb people is not even occasionally perfected in those who have had much trouble bestowed on them for their instruction. May not the reason be, (I speak only of those whose auditory nerves are perfect, and who have the portio dura capable of recovering impressions of sounds,) because their whole attention has been taken up with signs, &c., and no methods have been used to increase the power of the provision usually made by nature for supplying the defects occasioned by imperfections of the tympanum. I think this may be the case; because we find that the sensibility of the nerves, as far as the performance of their particular functions is concerned in the production of the senses, is increased by proper use. This I apprehend is the case with all the senses; but I will adduce, as an instance, only that of hearing. Many young people, it is said, have no ear for music, and perhaps, if no attention were paid to it, they would never have it as long as they lived;

but I believe that in almost every instance of this kind, by proper instruction from a master, and proper attention from the pupil, music may be taught, so that the learner may have as correct a judgment respecting every part of it, and be made to play and sing as well as many people who have the best ear for it naturally. Do we not find this argument supported by anatomical facts? Many of the nerves, like the muscles, enlarge by constant use. When much irritation has existed in a limb, the nerves of that limb may be found much enlarged, far beyond the place where the disease existed, and the nerves will have a healthy appearance; exactly as muscles have that are enlarged from use, compared with those that have been more inactive. Do we not find in subjects, where the features of the face are the most marked, that the facial nerves are much larger, and apparently more numerous, than in those where the expression has been less? And is it not the case in very old people, where sensation is almost lost, and the nerves have been but little exercised, that the facial nerves are so small and fine as to be with difficulty dissected? If this be true, may we not suppose that in dumb people the facial nerves would have much more power of receiving the impressions of sounds if they were properly exercised, than where no exertion of this sort is made? I doubt not but that many people have the power of hearing sounds with the face, where the mechanism of the ear is perfect; for I have frequently stopped up the ex-

ternal ear as close as possible, and yet the human voice has been heard. I have in one instance seen the ears so stuffed with wax, as to produce all the noises attending that complaint, without the patient being at all deaf. These noises had existed a year; and I conceive, in this case, the facial nerves must have been of essential service to the patient.

Presuming that what I have said is well founded, it is not reasonable to expect, that the powers of the facial nerves should ever be fully developed in dumb children, if their instructors do not direct the whole, or by far the greater part of their attention to the proper exercise of these nerves. And if this is to be done effectually, it must probably first be by the assistance of instruments, to increase the effect of sound; and when these have been properly used, and have answered the intended purpose, then by gradually lessening their power until common sounds can be heard.

Lincoln, Feb. 27th, 1820.

CASE
OF
AMPUTATION
OF
PART OF THE TARSUS AND METATARSUS
AND
PRESERVATION OF THE SHAPE AND
USEFULNESS OF THE FOOT.
By JOHN DUNN, Esq.
SURGEON AT SCARBOROUGH.
COMMUNICATED BY
DR. ROGET.

Read Dec. 12, 1820.

PREVIOUS to my partnership with Mr. Travis of Scarborough, the following case occurred during my practice at Pickering.

James Padget, aged 14, of the parish of Gillowmore, near Kirby Moorside, a boy of a pale and delicate complexion, and of a scrofulous family, applied to me on the 20th May 1816. He had been accustomed to hard labour as a miner in a

coal pit, where his feet were frequently wet, and exposed to cold. To this cause was ascribed an inflammation of the foot, which gradually increased, and terminated in suppuration. He had been suffering for two years; a small portion of bone had exfoliated; the discharge was offensive; and hectic fever was established, with its usual concomitants, night sweats, diarrhoea, and a very frequent pulse. Several fistulous sores burrowed in different parts of the foot: on passing a probe, it often grated against bone; the least touch produced pain, and all motion was intolerable. The sinuses were laid open with a knife, in order to afford a better view of the parts, and facilitate the removal of any detached portions of bone. After the patient's bowels had been brought into a better state, the powder of bark was given, a healthy residence was chosen for him, and a nutritious diet enjoined. On the 9th of July, a small piece of bone came away; the wound was again dilated, and the muriatic acid, much diluted with water, was applied to promote exfoliation. His health continuing to suffer, and no amendment taking place in the joint, still more active measures became indispensable. As the boy consented to any operation but amputation, I determined upon excision of the carious bones. Accordingly, on the 27th July, I applied the tourniquet to the thigh, divided and reflected the integuments of the instep, which were partly diseased, cut through the extensor tendons of the foot, and after a formidable

dissection, removed the os cuboides, which was so carious as to break in pieces between my fingers during the operation. As the contiguous bone was now discovered to be equally diseased, (for I could only ascertain the extent of the mischief by this dissection,) the external cuneiform bone was next removed. I now thought it prudent to desist, being in hopes that the remaining diseased parts would exfoliate. On relaxing the tourniquet, no serious degree of hæmorrhage ensued ; the edges of the wound were brought as near together as possible, and the limb bound up with a compress of lint and a roller. Powders of bark and the carbonate of iron were given three times a-day. His constitution seemed to bear the foregoing operation extremely well, and his health daily improved. On account of the fætor experienced on dressing the sore, fermenting poultices were applied, and diluted tincture of myrrh used as an injection. The boy being extremely anxious to get well, and the recovery likely to prove tedious, without an extension of the operation, he resolved to submit to this proceeding, for which his present improved health was deemed favourable. Accordingly, on the 17th of August, by a similar excision to that above described, I removed the os naviculare, and the two cuneiform bones, and sawed away the diseased tarsal extremities of the metatarsal bones of the second and third inner toes. A deluge of blood followed ; the boy fainted ; my assistants, who were only two apprentices of fourteen years of age, a

woman, and two labouring men, were so sick and alarmed as to desert the room. The perplexity was increased by my now finding the anterior portion of the astragalus likewise diseased. On account of the bleeding, not a step could be seen of the operation; the sense of touch was consequently my only guide. I determined, however, not to lose the advantages already obtained; and on my patient's recovering from syncope, I scraped off some of the diseased parts with a large scalpel. He had now suffered so much from the pain and loss of blood, that I desisted from any further interference, trusting that nature would be adequate to the accomplishment of the rest of my intentions. On completely relaxing the tourniquet, a number of vessels bled, which could not be taken up with the forceps or tenaculum; but dry lint, and pressure with a roller, put an entire stop to the hæmorrhage. The sides of the wound were kept as nearly as possible in contact without sutures, which, when applied, cut their way through the edges of the unsound skin. So wide was the breach made in the tarsus, that directly after the operation, the toes might have been turned back to the heel. The dressings having been wetted with a cold lotion, the patient was placed in bed in an airy room, and a dose of opium administered. All appeared to go on well: a little brandy and water soon dispelled his faintness, and he passed a moderately good night. On the 21st, the foetor becoming extremely offensive, I took off the outer dressings, wetting them with cold water

to facilitate their removal. Some degree of hæmorrhage now arose, which made it necessary completely to expose the wound. The bleeding at first yielded to pressure, but in the night returned ; and as the blood was constantly oozing through the roller the following morning, I was compelled to make search for the artery, which, after some considerable trouble, was secured. Cold water and a roller were re-applied, and a loose tourniquet, ready to be tightened in case of need, was left on the thigh. The boy was kept cool and low, and every thing again proceeded well ; powdered bark, opium, and diluted sulphuric acid, being the principal medicines for which he had occasion. The wound was dressed again, and found to have put on a much more favourable appearance. Suffice it to add, that the part healed up in a short time, with the exception of a deep sinus or two, which were cured in about two months by the pressure of adhesive straps. At the end of September, the boy could walk with a stick, which he soon dispensed with ; and, before the Christmas following, was well enough to be bound an apprentice. He enjoys the soundest health, and walks without the least pain or apparent lameness, having taken a journey of nine miles in one day on foot : and, notwithstanding the above free removal of bone, the natural appearance of his foot is little altered. Indeed, on examining it in March 1817, the place from which the bones, with their ligaments and cartilages, were taken, was so filled up with hard carti-

luginous matter, that hardly any deficiency was perceptible. At the same period, viz. March 1817, the deformity of the foot was scarcely discernible, the part being of its natural breadth, and only three-fourths of an inch shorter than its fellow. The boy could extend his foot pretty well, but had little power of bending it, not being able to elevate his toes without the concurrent motion of the whole foot. The limb answered for every purpose of business, and at the preceding date was well, except a slight oozing from a superficial sore, which has subsequently healed. Before the operation, there was some difficulty in forming a decision for its performance. In the country, if the patients be not persons of property, we are frequently obliged to make our determinations without having the advantages of another professional man's opinion. On consulting my library, Mr. Charles Bell, in his *Operative Surgery*, mentions having recommended, in one example, the flap operation of the leg for a disease of the foot, to which the patient, who was only a boy, would not submit. Mr. Bell says, "the amputation of the metatarsal bone of the great toe may be necessary, or that of the metatarsal bone of the little toe; but I conceive from what I have seen of the pain and difficulty of extracting any of the intermediate metacarpal bones, and considering the effects of such a torturing and tedious wound among the bones and ligaments of the foot, that it should not be performed." Further on, he seems to think, that the nice extraction

of the spoiled bones in caries might be tried; but he gives it without any fact, or even his own experience in its favour; so that, on reading the previous statement, one would pause between the speculative suggestion in favour of, and his positive and practical declaration against, the operation. Besides, even here, the metatarsal and metacarpal bones seem to be those to which the author refers; and in the operation described by him, the toes are also removed with the metatarsal bones. Mr. Hey does not speak at all of the excision of the tarsal bones; and he remarks, "I never yet attempted to take out a single metatarsal bone from the middle of the foot, partly from an apprehended difficulty of taking up the bleeding vessels, but chiefly," and most truly, "from an uncertainty respecting the extent of the disease." He mentions instances where the metatarsal bones were sawn off; but, here, the toes were removed, the cure was very tedious, and the cicatrix extensive. In his two cases, which are exhibited in plates, the toes were removed with the metatarsus, and the bones of the instep do not seem to have been affected. No guide, therefore, could be had from this work. An inference might have been drawn for a similar operation of the foot, at the arch formed by the astragalus and os calcis. This would have produced a doubtful issue (for I had not then read Mr. Roux's publication) as to the probability of the patient's afterwards walking with ease to himself upon the os calcis alone, with a cicatrix

over bones, in a constant state of attrition. But, besides the mutilation necessarily attending the flap operation, this proceeding is liable to as much bleeding as the mere excision of the diseased bones, while there is also an uncertainty of the adhesion of the upper part of the flap ; and in a case of this kind which I have seen, there was a running sore all the patient's life, and a frequent necessity for repose from the ordinary duties of business. Mr. Samuel Cooper had not then published his third edition of the Surgical Dictionary ; and as he only referred in the earlier impressions to the above remarks of Mr. Hey and Mr. C. Bell, it was pretty clear, that, by a man even of his research, no further advice worthy of adoption could be obtained. The toes and most of the metatarsal bones being in a sound state, the sole of the foot unbroken, and the boy determined against amputation, led me to attempt the above very free excision of the diseased parts ; an operation which surpasses, in extent and degree, any thing of the kind which my inquiries led me to believe has ever yet been done upon the foot. Happily the result has fully justified the experiment ; for now, instead of the foot, or a part of it, being left with the hard bones pressing against a tender cicatrix, it is preserved entire, and the cicatrix is on the top quite out of the way of pressure or friction. The soft cushion, naturally made by the sole, is also uninjured ; and the elastic spring and freedom of motion, for which we are so much indebted to the ends of the metatarsus and toes,

is retained, as well as the natural appearance of the limb. The bones taken away were sent, in 1817, to the late Dr. Adams, and were shewn to many of his friends.

Scarborough, June 23, 1820.

P.S. — I have this moment received a letter from Mr. Dowson, a surgeon in Kirkby Moorside, relating to this case, of which the following is an extract. “The sound foot is at present one inch and a half longer than the other. This difference, so much greater than at the time the cure was effected, would appear to arise from the imperfect powers of growth of the diseased foot, and the want of a proper bony basis. The lameness is extremely slight, and is caused solely by the want of flexion in the foot; for he never experiences any pain, even after very great exertion, and is equal to several hours daily labour in the coal pits. His appearance is delicate, but his health at present very good.”

These observations of Mr. Dowson, which have been written four years after the operation, furnish the most satisfactory evidence of its lasting success.

NOTE

ON THE SUBJECT OF THE PRECEDING PAPER,

BY

A. COPLAND HUTCHISON, Esq.

THE excision of any one or more bones of the tarsus with success, as in the case related by Mr. Dunn, deserves the serious attention of the surgeon ; but particularly if he be engaged in military practice : for, it not unfrequently happens, that a soldier or seaman is so wounded in battle as to require the amputation of one thigh or leg, whilst the greater part of the foot of the remaining limb is, at the same time, or subsequently, shattered or diseased to such a degree as to require amputation of this only remaining extremity also, according to the practice hitherto generally pursued. But recent gun-shot wounds of the foot, shattering the bones of the tarsus or metatarsus, are, generally speaking, not to be considered such as to require operation. Musket ball wounds of the foot, fracturing the bones of the tarsus or metatarsus, have by no means been unfrequent during the late war among soldiers and marines. An instance occurred in the island of South Beaveland quite in point. Lieut. Wolridge, of the marine artillery, was wounded by a musket ball, that traversed the foot obliquely, fracturing two of the bones of the tarsus, and three of the metatarsus. A consultation was held on his case, and amputation of the leg recommended ; the patient, however, declined submitting to any operation, until his wound had been examined by the surgeon of Deal Hospital. He was accordingly landed at the hospital, and was under my care

some months, during which time several incisions were made, and various pieces of bone extracted; and eventually he quite recovered. I was much gratified to meet this officer in London a few years afterwards, walking in the streets with scarcely any lameness; and I heard, with great pleasure from another quarter, that subsequently to his recovery, lieut. W. mainly contributed to the destruction of the Algerine vessels of war in Môle, by being employed in the boats, that set them on fire during the battle, on which service he could not have been so employed had his leg been amputated.

The two cases related by Mr. Hey, in his Practical Observations, that which is the subject of Mr. Dunn's memoir, and the one detailed by myself*, and which is quite in point also, as it regards military surgery, will, I trust, lead surgeons to pause ere they amputate a leg for a diseased state of the tarsal, or first row of the metatarsal bones. When, however, there is such disease existing in several bones of the foot, as to require operation, I should rather recommend the total removal of part of the foot, as stated in the cases above adverted to, (always leaving the os naviculare, if possible,) than put the patient to so much more pain, and the operator to so much more difficulty, in securing bleeding vessels, and in dissecting out so many bones of the tarsus, as was so successfully effected in the interesting case of Mr. Dunn.

The poor man, Farmer, who was the subject of my operation, has the complete rotatory motion of the remains of his foot, and traverses the streets of London on it and his wooden leg, without any assistance from a stick, selling

* See some Practical Observations in Surgery, by A. Copland Hutchison, published in 1816.

shrimps &c., to obtain a more comfortable subsistence than his pension alone would enable him to enjoy. The president of this society, and some of my colleagues, at the Westminster General Dispensary, have seen the case I am adverting to.

I need hardly repeat, that amputation of the foot, under any circumstances, as spoken of above, should never be attempted in tropical climates, for the reasons I have elsewhere assigned.

Spring Gardens, 27th Feb, 1821.

AN ACCOUNT
OF A
CASE
IN WHICH
NUMEROUS CALCULI
WERE EXTRACTED FROM THE
URINARY BLADDER,
WITHOUT
THE EMPLOYMENT OF CUTTING INSTRUMENTS.

By ASTLEY COOPER, Esq. F.R.S.

SURGEON TO GUY'S HOSPITAL.

Read Feb. 6, 1821.

ALTHOUGH the operation of Lithotomy is now performed with a degree of celerity and safety, which renders it much less appalling to the patient, and less difficult to the surgeon, than prior to the time of Cheselden; yet every candid person must admit, that if means could be suggested, by which the operation could be rendered less frequently necessary, it would be one of the greatest blessings which could be conferred upon mankind; for even when performed under the

most favourable circumstances, the opération of extracting a stone is attended with severe pain, and when the calculus is large, with considerable difficulty and danger.

It was, therefore, with a high degree of pleasure I witnessed the following case, in which numerous calculi were extracted from the bladder, by means which did not expose the patient to any loss of blood, did not produce the slightest danger, or occasion any very considerable degree of suffering.

I am fully aware of the impossibility of extracting large urinary calculi by the means which are here recommended ; yet I cannot but feel a hope that they may be removed in the early stages of the disease by the following means, before they have acquired a bulk too large to pass by the urethra.

In the infant also, it will be ever extremely difficult to contrive an instrument of sufficient delicacy to be introduced into the bladder through the urethra, which shall possess such a degree of strength as to enable it to grasp the stone firmly, and to extract it with safety.

I shall now proceed to detail the circumstances of the case as they have been related by the patient himself, and will then conclude with some observations upon the means which were employed

to obtain relief, and explain the particular case in which it is practicable to afford it.

CASE as related by the Rev. Mr. Bullen.

The Rev. John Bullen, of Barnwell near Cambridge, aged 64, of a spare habit of body, and of a sanguine temperament, having enjoyed an uninterrupted state of good health, capable of partaking largely of the amusement of hunting, and living always with great moderation, was attacked, in May 1818, with the symptoms of which he gives the following account:—

“ I was suddenly seized with a frequent inclination to pass my water, and an uneasy sensation along the course of the urethra, which continued with greater or less violence for about a fortnight, when I was surprized by the appearance of a small round white stone at the orifice of the passage. The escape of this small calculus, which was attended with scarcely any pain, failed to produce any beneficial effect on my former symptoms, which continued unabated, both as to the degree of irritation and the frequency of making water. In this state I remained till June following, during which month several similar calculi passed, to the number of about thirty, producing no other inconvenience than a slight smarting pain along the

urethra. At the end of June, without any assignable cause, I was suddenly relieved from this discharge of calculous matter, and from every other symptom but that of a frequent desire to void my urine, which latter inconvenience occasioned me no feelings of anxiety or apprehension.

“ In the ensuing winter, I was seized with pains across the back and loins, for which Mr. Brewster, of Cambridge, supposing they proceeded from gravel, ordered me medicines which he considered likely to alleviate them, but without producing any permanent good effect.

“ I was however still enabled to pursue my favourite amusement of hunting, though frequently obliged to dismount to make water : at this time making no alteration from my accustomed mode of living.

“ Without any material change, I remained until the December of 1819, when I found the exercise of riding was becoming considerably more painful, and the inclination to pass my water more frequent, attended with some degree of difficulty in its passage, and a change from its usual colour and clearness to a fluid resembling chocolate. For these symptoms several formulæ of medicines having been prescribed, without any material benefit, I was induced to consult Mr. Abbott, a most re-

spectable surgeon at Cambridge, who ordered me medicines highly beneficial in their first effects; the relief, however, they afforded me, was but of short duration, for my symptoms recurred with all their former violence; and though the prescriptions were repeatedly altered at Mr. Abbott's suggestion, no sensible impression could by the most judicious treatment be made on the disease.

“ My friend Dr. Thackeray of Cambridge was in the June following called in consultation with Mr. Abbott; and both agreeing that the symptoms were produced by stone in the bladder, the sound was introduced to ascertain its presence, but failed to discover it. My symptoms continuing unabated, Mr. Abbott, a fortnight afterwards, still impressed with the idea of stone, again sounded me, but the stones, for the reasons hereafter given, escaped detection. To relieve my frequent inclination to make water, and to mitigate the pain I experienced in its discharge, I was recommended the use of an opiate glyster at bed-time, which afforded me considerable relief; but if the injection were omitted but for a single night, the symptoms returned with all their former violence.

“ In this state of suffering, I determined to consult Mr. Astley Cooper, and on the 17th of August went to town for that purpose. Mr. Cooper, suspecting from my account that a stone was present in the bladder, sounded me, but, after searching for some minutes, was unable to detect one; he

then directed me to discharge the water from my bladder, and the sound being again introduced, was distinctly heard to strike upon a stone. He then informed me that there were no hopes of permanent relief but from the operation of Lithotomy, at the same time remarking, that as I had not been sufficiently reduced by the irritation of the disease, to render me a favourable subject for the operation, it would be better for me to return to Cambridge, and by pursuing a certain plan of diet and regimen to reduce the high health which I appeared to possess. He also prescribed alkaline medicines for the purpose of lessening irritation. With this advice I returned home, where I remained till October 1820, pursuing the use of the soda and the opiate injection. My sufferings being alleviated only for the moment, and seeing no probability of experiencing further relief from medicine, on the 23d of October I came to London to submit myself to the operation; and the 30th was the day proposed for its performance.

“ On the day appointed, Mr. Cooper, his nephew Mr. B. Cooper, and Mr. Merriman, junior, attended at my house. Upon sounding me, the instrument could be distinctly heard by every person present, and even by myself, to strike against a stone. Mr. Cooper, however, was of opinion that the stone was so small as to admit of extraction without cutting into the bladder, and therefore determined not to perform the operation, but told me that he

would try less dangerous means to rid me of this complaint, and happily under these circumstances the operation was deferred.

“On the 3d of November, I called at Mr. Cooper's house, when he passed a full-sized bougie into the bladder, for the purpose, as he said, of dilating the urethra, and thus giving the stone an opportunity of passing with the flow of urine. This operation was repeated on the 6th, 10th, and 13th of November; but on the 14th, an inflammation took place in the prostate gland from the introduction of the bougies, and put a stop to the prosecution of this plan of treatment. The effect of this inflammation was a retention of urine, rendering it necessary for Mr. Cooper to draw off my water every twenty-four hours, at which time the calculus could always be distinctly felt by the catheter. After the inflammation had subsided, the power of making water not having returned, Mr. Cooper passed an elastic catheter into my bladder, and directed me to wear it, teaching me at the same time how to withdraw it when it became either painful or obstructed; and on several occasions I discovered small white stones in the opening of the instrument, similar to those which I had passed in 1818. Mr. Cooper, upon being acquainted with this circumstance, expressed a wish to remove the instrument himself, when upon withdrawing it, a stone was seen large enough to fill the opening in the side of the elastic catheter. The passage of these calculi suggested

to Mr. Cooper the possibility of inventing an instrument by which he might remove those which remained in the bladder; and on the 23d of November, he brought with him some instruments contrived for the purpose, one of which he directly employed, and was so fortunate in the first trial as to remove eight calculi of small size. The operation was productive of a very inconsiderable degree of pain.

“ On the 28th, eight more were removed by the same means, of a larger size than the former, two being as big as horse beans. This operation was attended with even less pain than the former.

“ On the 30th, eleven were extracted, three or four being engaged each time the instrument was withdrawn. The removal of these gave me great relief, for I was immediately enabled to pass a considerable quantity of urine by my natural efforts, and previously to this, ever since the large bougie had been introduced, I had been unable to pass my water without the aid of the catheter.

“ On the 8th of December, six stones were removed by the same means.

“ On the 13th, nine more were taken away.

“ On the 19th, three more were extracted.

“On the 23d, twelve were removed, and thus only allowing the intermission of a day or two for the irritation to go off. The operation was continued until eighty-four calculi were, by these means, extracted from my bladder, when Mr. Cooper pronounced, after a most careful examination, they were all removed. My health has been all this time uninterruptedly good, with the exception of the attack of retention of urine from the use of the large bougie, and I am now able to discharge my urine without the use of the catheter, and to walk nearly as well as I ever did.”

REMARKS.

When a great number of calculi are found in the bladder, as was the case in the Rev. Mr. Bullen, the circumstance is generally attended with an enlargement of the prostate gland, and it depends upon a sacculus being formed in the bladder directly behind the enlarged gland. In these cases the bladder is rarely completely emptied of its contents, and the calculi crystallize from the urine retained in this sac.

Such stones do not in general acquire the magnitude of those formed under the usual circumstances, and, from their number and collision against each other, their surfaces are generally smooth, and

their shape is commonly rounded. Fifty-six such calculi were found in the bladder of Mr. Perkins the brewer, who died from retention of urine; and a hundred and forty-two I extracted from a patient of my friend Mr. Carden's, surgeon at Worcester, who had for some time attended him for retention of urine.

Persons who labour under this form of disease, sometimes pass the smaller of these calculi whilst making water; but the larger still remain, produce retention of urine, and the operation of Lithotomy has been frequently performed for them.

When calculi are thus placed, they are so concealed in the bag in which they are contained, that, in sounding, the instrument is liable to pass over them without their being discovered, and it is therefore necessary to dip the point of the sound towards the rectum as it enters the bladder, in order to detect them, or to pass the finger into that intestine, to raise them from the bed in which they are concealed; and it is for want of attention to this circumstance that I have known a person pronounced not to have the stone, from whom I afterwards removed thirty-seven by the operation of Lithotomy.

The instrument which I first had made for the purpose of removing these stones from Mr. Bullen, were merely common forceps, made of the size of a

sound, and similarly curved ; but Mr. Weiss, surgeons' instrument maker in the Strand, shewed me a pair of bullet forceps, which he thought would, with a little alteration, better answer the purpose I had in view. He removed two of the blades of these forceps, for there were four, and gave them the form of the forceps which I had constructed : the blades of this instrument could be opened whilst in the bladder by means of a stilette, so as to grasp and confine the stone, and they appeared so well constructed for the purpose, as to induce me to make trial of them. (See Plate VI.) On the 23d of November, 1820, I first employed them, and the manner in which they were used was as follows : Mr. Bullen was placed across his bed, with his feet resting on the floor, and a silver catheter was then introduced, and the bladder emptied of its urine. I then passed the forceps into the bladder, and was so fortunate in my first operation as to extract eight calculi.

The instrument gave but little pain on its introduction, but when opened to its greatest extent, and the stones admitted between its blades, their removal was painful, more especially at the glans penis, which appears to be the portion of the urethra, which furnishes the greatest resistance to the removal of the stones.

A dose of opium was given after each operation, which Mr. Bullen has described ; it fre-

quently allayed all irritation ; and in the intervals between the latter operations, he walked from Brompton into London ; nor was he ever, after the symptoms of retention had left him, either confined to his bed or to his room.

ON
SLOUGHING PHAGEDÆNA.

By RICHARD WELBANK, Esq.

Read Feb. 20, 1821.

IN soliciting attention to the subject of sloughing phagedæna, I should feel exempt from any charge of haste or presumption, if, in addition to the many and melancholy records of so severe a malady, I could add but one solitary fact that could tend to elucidate its nature. There are few diseases that, on account of the insidiousness of their origin, the torturing devastation of their progress, or the fatality of their termination, can demand a more anxious vigilance from surgery. In adverting first to the local characteristics of this affection, I shall describe it as I have myself seen it extending progressively from some small point of ulceration or abrasion; although a similar, and as I believe, from the perusal of military authors, an identical form of disease has at once attacked the entire surfaces of stumps and other large solutions of continuity, under the denomination of hospital gangrene*.

* I may refer those who are interested in a more full consideration of this point to the works of Blackadder, Thomson, Hennen, and Delpech's *Mémoire sur la complication des plaies et des*

I have, for the most part, had occasion to observe this malady in the lowest class of prostitutes. It announces itself, as far as can be ascertained from their somewhat uncertain evidence, in the form of a highly irritable and painful papula or small boil, surrounded by a halo of dusky red inflammation, and much elevated; the patients in general having mucous discharges from the vagina, and a diffused redness of integument in the vicinity of the pudenda. The disease is generally situated in the cleft of the nates, in the groin, or at the inner and upper part of the thigh. The elevated point of inflammation vesicates, and being broken either accidentally, or by design of the impatient sufferer, assumes immediately those characteristics which are only more developed by the progress of the malady. The disease at all periods is attended with severe darting pains, at first occurring at intervals, but gradually establishing themselves as a more constant symptom, with occasional exacerbations. The earlier appearance of the exposed surface is often merely that of a stratum of adherent straw-coloured flocculi, with a glairy viscosity of secretion that gives to many of the diseased portions the resemblance of a thick puriform discharge; this is, however, for the most part mottled, and interspersed with darker points of

ulcères connues sous le nom de Pourriture d'Hopital,* Paris 1815. With the admirable reports of the latter author, I have so repeatedly identified the progress of sloughing phagedæna, that I do not hesitate often to adopt his descriptions.

reddish brown and grey tint generally. As the surface gradually enlarges, with aggravation of the attendant symptoms, the centre becomes somewhat depressed ; nor can this appearance be referred to the mere elevation of the surrounding edges, which are abrupt, but thickened, frequently everted, and sometimes even presenting the appearance of a red and flattened lip. Around the sore, the form of which is for some time circular or oval, is extended a circumscribed thickening, with an encreasing halo of a dark red inflammation ; to this is often added a puffy and less limited tumefaction of the cellular substance. Occasional hæmorrhage soon occurs from the darker points. As the disease advances, a peculiar and fœtid odour becomes sensible on approaching the patient : a reddish brown or chocolate-coloured discharge may be pressed from different points of the sodden slough. The sensation produced to the finger is that of a yielding pulpy substance ; the degree of sinking being commensurate with the encreasing thickness of the sloughy stratum. It may now be readily observed, that the surface of the sore is below even the general level, and yet has this apparent loss of substance taken place without the actual separation of any solid portion of the disease. At last, however, as the putrescence of the slough advances, we observe a great quantity of foul secretion ; and shreds of pulpy matter are detached by the removal of poultices, or the local applications. The sloughs are sometimes grey or ash-coloured, but

in many instances, and particularly at the more advanced periods, when they are very deep and large, they become of a dark brown, and even resemble coagula retained by threads of cellular substance. The disease may continue to deepen, although the edges sometimes become clear, the pain becomes constant and agonizing, and considerable hæmorrhage not unfrequently attends the latter stages. The patient generally lies upon her back, with the thighs abducted and bent upon the pelvis. The parts most readily subjected to the devastations of this malady, are the cellular and adipose tissue; the rapidity and extent of its progress, when situated in the groin, upper part of the thigh or nates, are sometimes terrific. It seems that it is only in textures moderately supplied with vessels and nerves, or claiming only a medium degree of importance in their functions, that the disease can most speedily establish its destructive agency. Parts of high or low organization are best able to resist its progress; the one by their indisposition to admit, the other by their powers of supporting the morbid excitement if established. Thus, when we read of muscles perishing, or arteries corroded, we must consider that they have been partially dissected, or even insulated by the destruction of parts surrounding or connected with them; in this manner I have observed the skin at the edges mortify by the extension of disease beneath it. That parts of low organization resist the disease, is manifested by its comparatively slow progress,

when it has extended to the compact and fibrous texture of fasciæ and aponeurotic expansions. The surrounding thickening and inflammation have been considered specific ; to me sloughing phagedæna seems a disease that has a power of extending itself by its acrid and stimulant secretions, but at first provoking in its vicinity only the actions of common inflammation more or less in degree. Such parts, however, as have been inflamed from contiguity, being enfeebled by continuance of the unceasing excitement, are finally subjected to the influence of the local stimulant, whose peculiar actions sooner or later, in proportion to their vitality, they assume. It is interesting to see the rapidity with which these sores, at the highest point of irritation, lose their halo of inflammation and surrounding thickening, on the application of measures calculated to destroy their secretory surface and discompose their secretions. Again, when general constitutional disturbance supervenes from the increased extent of the local malady, and unites in alliance doubly subversive of healthy processes of resistance, the latter stages of this disease are progressive in a degree that surgery itself may shudder at. The fact of its earlier stages being attended with little or no disturbance, would further seem to advocate the local nature of the malady. It is also highly contagious; and I am informed by Mr. Earle, that the diffusion of the malady when committing unusual ravages in the foul wards of St. Bartholomew's Hospital, was traced to an in-

advertent use of the same sponges for different patients. I have frequently seen a part of the diseased surface clear off and granulate, while the mischief continued progressive at the opposite edge. I may also mention that under constitutional treatment, the pulpy slough will sometimes separate in the circumference, exposing large and florid granulations; while the impatience of our hope is scarcely repressed by the continued pain, which, in conjunction with other symptoms, attends the progress of destruction at the base and centre. It may be further observed, that the symptoms of general disturbance that supervene, are promptly relieved by measures that control the agency of the local virus.

The constitutional disturbance is gradually effected and may be readily accounted for, by the unremitting and progressive increase of local irritation, the occasional pains becoming more frequent in point of interval, severer in degree, and at last constant. Nocturnal exacerbations are established, and the patient knows no rest but that of short dozings; the appetite fails, the tongue becomes white or furred, the epigastrium tender, a peculiar expression of anxiety is manifested, the eye is dull, pain is felt about the forehead, temples, and not unfrequently at the back of the head, febrile irritation gradually supervenes, with acceleration of pulse, restlessness, and thirst, the skin is sallow, with more or less increase of temperature. Bilious

vomiting and diarrhœa are often attendant as the progress of the malady becomes rapid, and the pain is excruciating. Delirium rarely supervenes, and the patient retains a miserable consciousness of severe suffering, till the powers of life are no longer able to wrestle in their agonizing contest with the disease.

Whatever may be the original nature of the malady, whether local or constitutional, I most readily leave the uncertainty of speculation for the more interesting consideration of the treatment to be adopted, which appears to me to consist in measures that will most speedily destroy the local virus and its source*. Mercury has been constantly observed to exert a most malign influence on the local malady; and this fact appears to me explicable by the consideration that mercurial irritation of the system is subversive of the natural and healthy processes of resistance to the

* The principle of treatment I have ventured to recommend in submitting these observations, and even the practice of employing the mineral acids as escharotics, has been adopted by some military surgeons in cases of hospital gangrene with success. Although not ambitious of any claim to priority of suggestion in the treatment of sloughing phagedæna, I may observe, that before my knowledge of this circumstance, I was induced, after having repeatedly seen cases terminate fatally and after severe suffering, to apply undilute nitric acid with the mere hope of relieving the local pain by the destruction of the diseased surface; for I had observed bleeding points and nervous filaments evidently undestroyed, when I attempted to remove any portion of the sloughs.

progression of the disease: even the alterative dose during the active stage, has seemed to act as a prejudicial stimulant to a state of digestive organs, rendered highly susceptible by the constant excitement of the general system. Venæsection may be adopted with advantage at early periods, while the disease is yet superficial, and the constitution not much disturbed. In plethoric habits particularly, it has appeared to me that a temperate abstraction of blood lessens the susceptibility of the general system, and relieves the throbbing darting character of the local inflammation. But while we hope that the local irritation may be thus beneficially counteracted, and the exhaustion likely to ensue from long continuance of severe excitement obviated, yet must we be cautious how we ourselves render the system feeble in its contest with the local disease. The local application of leeches is inadmissible, as all wounds in the vicinity are prompt to assume the morbid actions. The exhibition of narcotics is beneficial by diminishing the excitability of the nervous system, and I have observed a most irritable state of stomach improve rapidly, and a foul and furred tongue clear off on the administration of large doses of opium at regular intervals. Bark is generally contra-indicated by the disposition to diarrhoea, a symptom not unfrequently attendant upon the advanced stages. Finally, I have now employed nitric acid as an escharotic, with uniform and immediate success in a great variety of instances; in three cases the

application has been made to the penis with prompt relief to the sufferings of the patient, and the progress of the malady. The method from which I have derived most benefit is as follows: if the disease be not far advanced, I at once apply the undilute acid, after cleansing the surface with tepid water, and absorbing the moisture with lint. Where, however, there is a thick and pulpy slough, it is better to remove as much as possible, with forceps and scissars before the application is made. The surrounding parts being then protected by a thick coating of lard or cerate, I proceed to press steadily, and for some minutes a thick pledget of lint previously immersed in the undilute acid on every point of the diseased surface, till it appears converted into a firm and dry mass. The parts may be then covered with simple dressings, and evaporation kept up externally by cooling lotions. As the application occasions more or less pain from half an hour to one or two hours, I have generally given twenty or thirty drops of laudanum at the time of using it. It is always prudent, often necessary, to remove the eschar at the end of sixteen or twenty hours, when such further measures may be adopted as the case seems to require. Where the patients have become perfectly free from pain, and the parts below the slough, on its removal, appear healthy and florid, the sore may be treated as a common wound or ulcer, though I may observe that stimulant dressings are generally most advantageous. I have myself generally employed

the ceratum lapidis calaminaris, or applied occasionally or constantly a solution of argentum nitratum in the proportion of two or three grains to an ounce of distilled water. If, however, the patients have suffered any recurrence of pain, referred to some particular point, or to the general surface of the sore ; if the affection be slight or severe, and the remaining slough deep or superficial, I would advise the re-application of the undilute acid. Dilution only weakens the remedy, and protracts the duration without diminishing the severity of the pain attending the application. The result is, that patients who have known no reprieve from suffering for weeks, and whose constitutions have become greatly disturbed in consequence, within a very short space of time sleep soundly and tranquilly, their fever subsides, and in a few days we should with difficulty recognize the individuals whom we had before seen subjected to the painful progress of a malignant and too often fatal malady.

To avoid trespassing too much on the attention of the Society, I have selected eight cases only for their consideration, two, of whose torturing progress and fatal event I was myself witness, without at that period any knowledge of means by which it could be arrested, four of later date successfully treated by the application of acid, while making rapid progress, one illustrative of a

slow form, and one in which the penis was the seat of the disease. For permission to lay these cases before the Society, I am indebted to the liberality and kindness of the surgeons of St. Bartholomew's Hospital.

CASE I.

Frances Bryant, aged twenty-one years, admitted into St. Bartholomew's Hospital, in the beginning of March 1819, with discharge from the vagina, and small foul ulcer at the inside and upper part of the left thigh ; no peculiarity of health or constitution requiring notice. In the course of a few days my attention was directed to the severity of pain referred by the patient to the situation of the sore. This symptom was at first intermittent, but soon became constant, with exacerbations, a peculiar factor, the mottled and extending slough, occasional bleedings, and great constitutional disturbance soon marked the presence of a malignant disease. Bilious vomiting, diarrhœa, fever, and ceaseless pain preceded its eventual termination in death in the course of three or four weeks. Every variety of local or constitutional treatment in which any promise of benefit could be suggested, was anxiously, but in vain, adopted. Among the local measures I observe, bread and water poultice with opium lotion, very dilute washes of nitric and

muriatic acid, arsenic wash, containing a considerable proportion of spirit, weak solutions of lunar caustic, linseed and yeast poultices, and the compound tincture of benzoin. In the constitutional treatment is noted, sarsaparilla, alterative doses of mercury, nitric acid, bark, and camphor mixture, with tincture of opium. On subsequent examination of the abdominal viscera, no appearances were observed that were not referable to temporary irritation.

CASE II.

Ann Lincoln, aged thirty-one years, admitted into St. Bartholomew's Hospital at the latter end of April 1819, on account of a sloughing sore that had extended in the course of six or eight days from the lower part of the sacrum to the labia pudendi. She had also a foul and circular sore on the inner part of the left thigh at its upper part; she complained of occasional severe pain in the situations of the disease; the surface of the sores was irregular, and covered with a foetid, pulpy, and thick slough, sodden with a dark brown discharge, and strongly contrasted with a halo of deep red inflammation: the edges were abrupt, and in parts everted. The constitution had become affected; she complained of fever and restlessness, and the countenance appeared sallow and expressive of great anxiety; some febrifuge and aperient

medicines were prescribed, and lint moistened with tepid opium lotion kept constantly applied to the diseased surfaces. In the course of a very few days the local and constitutional malady was much increased; the sore had deepened, and bilious vomiting with diarrhœa had supervened; an aromatic draught containing ten grains of the opiate confection was now taken every four hours, and a pint of red wine allowed daily. Under this treatment a very great improvement at first was observable; the sore became easier, the pulse less frequent, the sickness was relieved, and the countenance gave promise of returning tranquillity; the sloughs had separated from the edges, exposing red but large granulations, and the fœtor had become much less; pulpv shreds also came completely away. These advantages were, however, only temporary, and although the gradual increase of the opium at subsequent periods again appeared to be attended with corresponding benefit, yet notwithstanding this and other occasionally advantageous suggestions, the disease progressively deepened in the cellular and adipose substance of the nates, till it terminated at last, after three weeks, in death. A grain of opium every three or four hours procured no relief even from pain.

CASE III.

Catherine Ball, aged eighteen years; admitted into St. Bartholomew's Hospital, October 21, 1819,

with discharge from the vagina, and a sloughy sore at the inner and upper part of the left thigh. The latter disease was painful, and had existed three weeks, during which period it had acquired the size of a half-crown piece, under the use of local stimulants and the internal exhibition of mercury, to a slight extent. The circumference of the sore was elevated, hard, and of a deep red tint, and beyond this the general vicinity puffy and tender on pressure; the centre was depressed, though no slough had separated, and there was occasional bleeding from points of the surface. The constitution as yet had suffered no disturbance requiring notice; the pain gradually increased, and appeared to be aggravated by two cinnabar fumigations. In four or five days the characters of sloughing phagedæna were distinctly developed; the compound decoction of sarsaparilla and five grains of Dover's powder were prescribed night and morning without any relief. Becoming daily more assured of the nature of the disease, I determined upon adopting measures that, by destroying the whole surface, might at least produce a relief from the agonizing pain. With this view, on the 30th of October, I applied equal parts of the nitric acid and water; a temporary aggravation of pain, which lasted three-fourths of an hour, was succeeded by a repose and ease which the patient described as "being in heaven." In about twelve hours the pain recurred, and was again relieved as before, and she fell into a sound sleep. On the third day from the first application, as she still appeared to suffer a slight

recurrence of the pain, I removed the eschar with forceps and scissors, and re-applied the acid to the whole surface, in which I observed several sodden and sloughy points; the results were as on the first application. Still, apprehensive of relapse, I directed that some lint wet with ʒj. of acid in ʒiv. of water should be kept applied. On the sixth day the sore required no treatment but that of a granulating ulcer, and the patient was afterwards discharged from the hospital cured.

Mr. Langstaff, who had the kindness to see this case with me, was of opinion that under more lenient measures it would have proved fatal.

CASE IV.

November 6, 1819, Jane Brown, aged twenty-six years, had a painful and sloughy sore with elevated edges, inflamed and hard in its circumference, and the general vicinity swollen and tender on pressure. The surface was mottled and slightly depressed towards the centre; there was occasional oozing of blood from points, and a frequent recurrence of darting and severe pains. Its first appearance had been that of a small boil, attended with heat and pain, till the surface was abraded, when it assumed the above mentioned characters. The patient had had discharge from

the vagina nearly two years ; the sore had acquired the size of a half crown piece in a fortnight, and was situated at the inner and upper part of the right thigh, near to the labium pudendi. The patient was of a sallow bilious complexion, and had had more or less sickness for some days ; mouth dry, but without thirst ; pulse ninety-two, and regular. The constitutional treatment adopted, was an alterative dose of pilula hydrargyri and the compound decoction of sarsaparilla twice a-day, with small quantities of bread and milk for diet three times in the day ; and the local measures employed night and morning were, dressing the inflamed edges with simple cerate, covering the surface with lint immersed in tepid opium lotion, and externally a bread and water poultice, the moisture of which was maintained by occasional additions of opium lotion. Under this treatment the disease continued progressive for four days, when the local pain and constitutional disturbance were so great, that it became necessary to give a pill composed of extract of hyoscyamus and conium three times a-day ; the only advantage derived from this and the other measures, appeared to be a procrastination of the constitutional excitement. To such an extent, however, had the general and local malady increased by the 17th, that the application of the undiluted acid was made to the surface ; in one hour and a half she became quite relieved from pain, and slept soundly. A dilute lotion was afterwards employed as a preventive. On the third day there remained

nothing but a healthy granulating sore, and in the next month the patient was discharged cured.

Mr. Vincent and Mr. Stanley both saw this case, and were of opinion that such a disease, under ordinary treatment, would have terminated fatally.

CASE V.

Jane Nash, aged twenty-one years, admitted into St. Bartholomew's Hospital with severe scabies purulenta over the whole body, and a pale and thin discharge from the vagina, unattended with ardor urinæ about three weeks from the present date, July 5, 1820; at that period she had also irritation and chaffing of the skin between the nates, referred by her to the discharge; these latter symptoms got well under the use of lotio calcis cum calomelanè and tepid bathing. About ten days since, a vesicle formed upon a boil situated at the posterior part of the cleft of the nates; this, on breaking, exposed a sloughy surface, disposed to bleed, and attended with great pain, reaching to the lumbar region; this pain was nearly constant and darting. The sore had now acquired the size of a tea-cup, was slightly depressed, and surrounded with elevated and inflamed edges; surface pulpy, tender, and of a dark brown mottled appearance; viscid discharge of reddish brown colour; constant pain,

with occasional severe exacerbations. The constitutional and local treatment hitherto adopted was useless; except that the foetor had been corrected by the use of charcoal poultices. The patient had had little or no sleep from first appearance of the disease. July 5, the undilute nitric acid was applied, and produced aggravation of pain for half an hour, after which period, the patient slept, completely relieved from her sufferings; the eschar was removed the next day, and a process of sloughy cellular membrane unaffected by the acid exposed. A dilute lotion, containing half a drachm to an ounce of water, was now applied constantly, but there were suspicious points that required the re-application of the undilute acid for security in a few days. The patient suffered no relapse, and the large cavity that extended down to the sacrum was in one week rapidly filling, with florid granulations, and in three weeks from the first application of the acid, the patient was discharged cured.

CASE VI.

Anne Mac-Intosh, aged nineteen years, admitted into St. Bartholomew's Hospital, November 30, 1820, had had great discharge from the vagina, during a fortnight previous to her admission. On examination, great chafing and redness were observed in the vicinity of the pudenda; and irregu-

lar points of ulceration in the same situation. These sores proceeded with regular enlargement to aggregate themselves into one surface of sloughing phagedæna, with no relief from poppy fomentations, cold washes and other remedies, local and constitutional. In one week, the disease had so extended itself in every direction, with increasing pain and the supervention of great constitutional disturbance, that on the 7th of December, she was bled 18 oz. by which the febrile excitement was somewhat diminished, but the local pain remained undiminished; effervescing salines were prescribed, but it was judged necessary to repeat the blood-letting to 20 oz. the next evening. These measures gave no relief to the local malady, which was now spreading with increased activity. On the 9th, I was requested to see her; she had now ceaseless pain with occasional severe exacerbations; a large sore was seen on the inside of the right thigh with everted edges resembling on one side a lip, and having all the characters of sloughing phagedæna, and throughout the cleft of the nates was a diffused dusky red inflammation with points of the same malign character as the sore on the thigh; she had had little or no sleep for ten days, and appeared to suffer extreme pain. I applied the undiluted acid, and in three quarters of an hour she slept soundly. No recurrence of pain was noticed till three days after, when, on removing the slough, points of undestroyed disease were exposed, and the acid re-applied. This gave the usual relief, and on the fifth day from the first

application, the sores required no treatment but that of granulating ulcers.

CASE VII.

Sophia Blandon, aged twenty-four years, about three months ago had profuse discharge from the vagina; some highly inflamed pimples formed about the lower commissure of the labia pudendi. As she neglected cleanliness and rest, these points became excoriated, and soon extended into a sloughing sore on one thigh at first, and then on the other. The sloughy surfaces alternated from better to worse, while they slowly, but gradually acquired a size rather larger than the palm of the hand; they bled at points, and were very painful; the whole surface was extremely irregular, and a various degree of abruptness at the edges indicated where the disease was most active. By the duration of the malady for so long a period, the whole system had become disturbed; she complained of general and severe pains in the limbs, was palid and emaciated, and had a small and frequent pulse. She had received no benefit from a great variety of measures.

February 12, 1820. Suspecting from the glairy appearance of the surface in general, that it was in points only that the disease had deepened to any great extent, and apprehensive of applying the strong acid to so large a sore, with such a de-

pressed state of general system, I contented myself with directing the constant application of a lotion containing 3j. of strong acid in a pint of water, and giving five grains of conium three times a-day. This caused severe smarting at first, but soon produced great relief to the pain; in three days nearly the whole surface was red and healthy; a solution of lunar caustic was ordered for the granulations, and the nurse omitted to continue the acid wash. In about eight days, having an opportunity of again seeing the case, I found that one point of sloughy appearance, whose situation the patient had described to me accurately, though before not larger than a sixpenny piece, had now acquired the size of half a crown, with increasing pain; the rest of the surface florid and cicatrizing. The strong acid was now applied to this descending process of the disease, and at once arrested its progress. The patient still required medical assistance, but was eventually discharged cured.

CASE VIII.

Samuel Cooke, aged twenty-one, about eight days ago, after the subsidence of a slight febrile affection, felt considerable uneasiness behind the corona glandis. This sense of uneasiness gradually increased to a darting pain, and he observed thickening and inflammation in the point described.

Connecting the vesicular appearance that was now evincing itself upon the elevated and thickened part with the intermittent but severe darting pain, I anticipated a sloughing sore, in which prognosis, I felt confirmed by the opinion of my friend Mr. Stanley, who also saw the case with me. This opinion was subsequently verified; the vesicle broke; a slight sloughy excavation manifested itself, and in eight days a grey, pulpy, rugged, sodden slough was visible, attended with severe pain and œdema of the prepuce. Mottled points from oozing of blood were also seen in the general surface; a belt of extreme induration surrounded it, and was very tender on pressure; he received no benefit from sarsaparilla drink with tartarized antimony. May 11, 1820, ordered five grains of compound powder of ipecacuan night and morning, a grain of tartarized antimony in a pint of barley water for drink daily, twelve ounces of blood taken from the arm, and tepid opium lotion applied locally. On the 14th, the size and attendant symptoms of the sore had encreased; he was again bled twelve ounces with as little benefit as before. On the 16th, as the sore now threatened to continue its phagedænic progress, I applied a dilution of the nitric acid in the proportion of one part to three of water; this caused severe pain for three hours, after which the patient was quite relieved. On the 18th, finding no injurious effect from the above application, and yet apprehensive of relapse from the sodden appearance of the eschar, I again applied the

acid, but now undiluted. This produced great œdema of the prepuce, which could not be retracted, so as to expose the sore. The absence of all pain convinced me of the benefit I had derived from the application, and in six days I was able to expose a healthy granulating ulcer. In the course of a few weeks the patient was discharged cured.

AN ACCOUNT
OF A
CASE
OF
T E T A N U S
SUCCESSFULLY TREATED
IN THE
YORK MILITARY HOSPITAL, AT CHELSEA,
By M. A. BURMESTER, Esq.

Read Feb. 6, 1821.

THE subject of this case was a stout healthy young man, nineteen years of age, who only a few days before his admission into the York Military Hospital, on the 23d day of November last, had enlisted into the fourth regiment of light dragoons. Upon his admission, he appeared to labour under symptoms of simple continued fever, which he attributed to exposure to cold and wet. He was bled, purged, and the usual plan of treatment for such cases was pursued.

Nothing peculiar was noticed until the 30th of November, when he complained of considerable

increased pain in his head, particularly at the back part, extending downwards between the shoulders, accompanied with sudden, violent and frequent startings, difficulty in deglutition, and inability to open the mouth. His tongue getting between his teeth had been lacerated by the convulsive motions of the jaw, and the head was drawn forcibly backwards. His skin was hot and dry, pulse full and strong, bowels costive, and he complained of insatiable thirst.

These formidable symptoms, indicating the presence of tetanus, led to particular inquiry, when the abdominal muscles were found hard and rigid, the extremities were drawn up by violent and convulsive spasms, and it was discovered that on or about the 12th November, (eighteen days previously,) he had, in cutting a loaf of bread, inflicted a small, and, apparently, trifling wound of the integuments covering the metacarpal bone of the index finger of the left hand, near its articulation with the first bone of the finger; from which accident it appears that these alarming symptoms had originated. The wound was at this time nearly healed, and had throughout been considered by the patient of so little importance, as scarcely to have attracted his attention.

With a view of diminishing vascular action, and allaying irritability, six and thirty ounces of blood were immediately taken from the arm, he was

immersed in the warm bath, an aperient draught administered, and five grains of the pilula hydrargyri, with half a grain of opium, directed to be given every second hour, and two drachms of strong mercurial ointment to be well rubbed into the thighs and external fauces night and morning; a draught composed of tincture of opium and rectified æther, of each a drachm, in camphorated mixture, being taken at bed-time.

Towards evening, the aperient had procured several copious evacuations; his bath had produced profuse perspiration, the violence of the spasms were diminished, and the pain of the neck and deglutition were somewhat relieved.

December 1st. He had passed a tolerable night, the starting during sleep had not been frequent or troublesome, nor did he complain so much of his neck; the difficulty of opening his mouth continued much as before; his pulse was quick and full; thirst very considerable, but he swallowed with less difficulty: the spasmodic affection, when it occurred, was momentary, but affected the muscles of the whole body generally. The blood letting was repeated, and his medicines continued, with the addition of a draught of camphor mixture and æther, after each of the pills. About an hour after his being bled, and immersed in the warm bath, his pulse had become less frequent, and soft and compressible; and towards

evening, the spasmodic affection had decreased in violence. His pulse, however, notwithstanding the quantity of blood taken in the morning, had considerably increased in strength and fulness; in consequence of which sixteen ounces more were extracted.

December 2d. The spasms, although not less frequent, were moderated in violence, and the pain in the neck was only felt upon their recurrence; the pulse was about 90, soft and regular; the mouth was affected by the mercury; his bowels were confined, and he principally complained of stiffness of the jaw, and affection of the abdominal muscles. He was now ordered some castor oil, and the convulsive spasms appearing to have been relieved by the diaphoresis produced by the warm bath, he was directed to discontinue the *pilulæ hydrargyri cum opio*, and to substitute ten grains of the *pulvis ipecacuanæ compositus* every third hour; and the pulse being again increased in strength and frequency, twenty-eight ounces more of blood were extracted from the arm. His castor oil operated freely, and the ptyalism having considerably increased during this day, the mercurial frictions were discontinued.

December 3d. He had been much disturbed during the night by the castor oil; the spasms had occurred less frequently, but affected the muscles of the whole body, and more particularly those of

the jaw and abdomen. The Dover's powder having produced nausea, was now ordered every fourth, instead of every third hour, and the warm bath to be repeated.

December 4th. He experienced only two or three spasmodic attacks during the night, but was this morning seized with pain and spasm at the scrobiculus cordis, with affection of the diaphragm; the difficulty of opening his mouth still continued. Pulse about 90, soft and full, bowels regular. This is the first day that he complained of any particular affection at the pit of the stomach. He was ordered to repeat his bath and medicine.

Upon coming out of the bath this day, his pulse had increased to 120, and profuse perspiration took place, which continued throughout the day; towards evening, the pulse was about 95, rather increased in fulness. He had experienced no spasms during the day, and opened his mouth with greater facility.

December 6th. Experienced only one slight spasm or sudden starting during the night, and which he described as if affected by fright. About ten o'clock this morning he experienced another spasmodic attack affecting the whole of the muscles generally, but those of the jaw with much less violence than heretofore; in consequence of the bowels being confined, he was ordered an aperient

mixture, and the warm bath and Dover's powder to be repeated. The aperient produced several copious evacuations, and he fainted in the bath; the perspiration continued profuse, but he had had, during the day, several slight attacks of spasm.

December 7th. He had been very little disturbed during the night; the principal affection was now of the abdominal muscles, particularly of the recti, which continued hard and contracted; he opened his mouth with greater freedom, and had had no return of convulsive spasm, of either the neck or extremities; the pulse was full and rather hard, about 100, bowels regular, perspiration profuse.—To continue the Dover's powder and warm bath.

He experienced only one spasmodic attack throughout this day, and towards evening his pulse became more soft and regular.

From this period the symptoms gradually decreased in frequency and violence, under the use of the pulvis ipecacuanhæ compositus and warm bathing, with an occasional aperient; and on the 18th December, he discontinued the use of all internal remedies, and only had recourse to frictions of the abdomen with camphorated oil, and an occasional warm bath, due attention being paid to the state of the alimentary canal.

By the 24th December, he became quite con-

valescent, the rigidity of the abdominal muscles had subsided, and nothing but weakness then remained. He has since been discharged, and has joined his regiment.

In this case, had ~~not~~ active remedies been timely resorted to, the ~~patient~~ would in all probability have died; and it would be a matter of some difficulty to decide, whether the copious depletion, the mercury, or the warm bathing and diaphoretics, were individually most effectual in promoting his recovery; for I am inclined to believe, that neither of these means, singly persevered in, would have produced this favourable result.

Of the very numerous cases of tetanus which have fallen under my observation, I once met with one, that recovered under very peculiar circumstances. The particular notes of the case I unfortunately lost, with my baggage, in the Peninsula. The subject of it was a man of the Coldstream Foot Guards, who had received a musket wound in the left hand, between the metacarpal bones of the index and middle finger, which had nearly healed, when tetanus came on. Ptyalism was induced by mercury; the warm bath frequently used, and opium given in large doses, without any visible advantage, and the patient was to all appearance dying. The wound was at this time unexpectedly affected by gangrene, considerable sloughing supervened, the locked jaw subsided,

and ultimately he recovered, with the loss of a considerable portion of the fleshy part of his hand.

How gangrene tended to promote recovery from tetanus, or what may have been its specific or peculiar action on the system, I cannot tell; but it would appear, that tetanus depends upon a peculiar state of the system, and of the part affected. What this peculiarity is, I do not pretend to know; consequently cannot tell how to correct it. I have, however, very generally found warm bathing and the use of diaphoretics alleviate the symptoms; whereas, on the contrary, the cold bath, as far as my experience goes, has only aggravated the spasmodic convulsions, and produced the most frightful contortions of the body.

CASE
OF A
SEPARATION
OF A
PORTION OF THE UTERUS
DURING SEVERE LABOUR.

By P. N. SCOTT, Esq.

SURGEON, OF NORWICH.

COMMUNICATED BY

DR. MERRIMAN.

Read March 6, 1821.

ON Sunday, the 29th of October, at 7 o'clock in the evening, I was requested by Mr. Keymer, a respectable surgeon of this city, to visit Mrs. Hall, a married woman aged 36, who was in labour of her first child.

He stated to me, that he had been in attendance for fourteen hours; that labour had commenced about 6 o'clock on the Saturday evening, when he first saw her, and that though the liquor amnii, (as he was informed by the nurse,) had escaped

some hours previous to his first visit, there had been but little progress made towards delivery. Mr. Keymer is a gentleman of very extensive experience, having been above fifty years in large practice, particularly in this branch of the profession; but he assured me that he had never seen a case, in which the sufferings of the patient were so extreme, and in which the os uteri was so tense and rigid.

On seeing the patient, I found that her sufferings continued unabated, that the os uteri was not dilated to more than the size of a half crown piece, and that it was principally of a thick and unyielding, but at a small portion of its extent, of a somewhat spongy texture.

As Mrs. Hall was of a very thin, spare, delicate habit, I thought it improper to bleed her, and therefore recommended warm fomentations, and other means to allay irritation.

The following morning, at 11 o'clock, I again visited her with Mr. Keymer, she had passed a restless night, distressed with most violent and constant pains, continually exclaiming, that she was certain she should burst. I found her in a most alarming state, and she appeared to be rapidly sinking.

She with difficulty told me, that about two hours

before, during a most severe pain, she felt something snap, and to use her own words, "That the web of her body had given way;" the noise of which, one of the attendants declared she heard; the pains had then suddenly ceased, attended with a discharge of blood, fainting, cold sweats, feeble pulse, and a vomiting of a brownish fluid. On introducing my hand under the bed-clothes, I found there had been a very considerable hæmorrhage, and among the coagula I discovered a substance, which I put aside for future examination. At this time I found the head of the child so low as to enable me to accomplish delivery speedily with the vectis.

The child was living, and the placenta was expelled without any difficulty. After waiting some time, by the use of light cordials the patient appeared to revive, but there was a singular fulness and tension of the abdomen, such as I had never before witnessed. It appeared to me to be a hopeless case, and I left the patient fearing she could not long survive.

On the Tuesday morning, her abdomen was swelled to an extraordinary degree, much larger than previous to her delivery, and for ten days it remained very tense and tender; the pulse was at the same time exceedingly rapid and feeble, skin hot, and tongue furred.

I drew off between three and four pints of urine in a very foetid and acrimonious state, and had occasion to repeat this operation three or four times in as many days.

In a week the bowels required large doses of calomel, Epsom salts, senna, &c. &c. to relieve them; and for a month the patient was feverish, and excessively weak and languid. During this time, several large coagula were expelled, and the body regained its natural size. She was much emaciated; but by the use of light tonics and nutritious diet, she gradually recovered her strength. Her health is now much re-established; but she has always suffered considerable inconvenience from a slight prolapsus uteri, which still continues. There is *very* considerable tenderness in the pudenda, and at the last examination *per vaginam*, which was about three weeks after the delivery, I found a continuous cavity, without any distinction between vagina and uterus.

The catamenia appeared about five weeks ago; they were preceded by pain in the back, and continued in very small quantity for two days. The child is in good health, and the mother has a plentiful secretion of milk.

The substance before alluded to, I transmit to the Society for inspection. It was particularly

examined by Drs. Rigby, Wright, Yelloly, Reeve, and Evans, by Messrs. Martineau, Bond, Robinson, Cross, Carter, Rand, Browne, Hull, and most, if not all, the other medical gentlemen of the city, who all agreed with me in considering it to be a portion of the uterus, containing the os uteri and an irregular part of the cervix surrounding it.

It was likewise seen by Dr. Merriman, and by him shewn to Dr. Gooch, Mr. Charles Bell, and many other physicians and surgeons, who formed a similar opinion upon the subject, without, however, having been previously told what ours was.

It has appeared to me, as Dr. Merriman suggested, that the head of the child passed through the superior aperture of the pelvis carrying the uterus before it, with the os uteri very little dilated, and that in this way the dilatation of the uterus was prevented, by the head pressing it firmly against the sides of the pelvis, so as to prevent the action of the uterus from being exerted on the cervix. The great force of the uterus acting on the body of the child, might thus produce the separation of the circular portion exhibited.

Ruptures of the uterus have been occasionally met with, and several cases are mentioned by

authors ; but as I believe there is no example on record of such an occurrence as I have detailed in this paper, I trust that the present account of it will not be unacceptable to the Medical and Chirurgical Society.

Norwich, Feb. 7th, 1821.

A
CASE
OF
INGUINAL ANEURISM,
SUCCESSFULLY TREATED
BY TYING THE EXTERNAL ILIAC ARTERY,
By EDWARD SALMON, Esq.
SURGEON TO THE FIRST BATTALION OF THE THIRD REGIMENT OF GUARDS;
COMMUNICATED BY
MR. EARLE.

Read March 20th, 1821.

THOMAS BROOD, aged twenty-nine years, a private in the third regiment of guards, was brought to the hospital in September 1820, with an aneurism in the groin, extending to Poupart's ligament. From his own account, it had been ten months in acquiring this magnitude.

I performed the operation of tying the external iliac artery on the 12th of September, making an incision through the integuments three inches and a half in length, beginning above the spine of the

ilium, and continuing it to the base of the tumor. The aponeurosis of the external oblique muscle being brought into view, was divided to the same extent, and in the direction of the external incision. The internal oblique, and the transverse muscles were divided with a probe-pointed bistoury, to the extent of an inch and a half. With great care I pushed aside the bag of the peritoneum, by which means I was enabled to introduce my finger down, so as to feel the external iliac artery beating under it. I endeavoured to separate the vessel, but could not succeed, either with my finger, or the point of the aneurismal needle. With a scalpel, therefore, I made an incision on each side of it, and then passed a strong ligature underneath it, taking care to include nothing but the vessel, and tied it firmly. The pulsation in the tumor instantly ceased, the edges of the wound were brought together with a suture in the middle and straps of adhesive plaster.

After the operation, the patient complained of some little pain in the abdomen, which subsided in the evening; an opiate was then given, and the diet was restricted to bread and tea.

September 13th. He had a quiet night, slept five hours; pulse 112; no difference of heat in the extremities. In the evening complained of great flatulence; there was also tension of the

abdomen, for which he was ordered an opening medicine, not having had any stool during the day.

14th. Had a restless night, with griping and no stool. The opening medicine was repeated, from which he had two stools, and was greatly relieved ; pulse 96.

15th. Slept five hours ; had four stools, no pain in the abdomen ; pulse 88. This day the dressings were removed ; the incision had united.

16th. He passed a good night ; skin cool, no pain ; pulse 80.

19th. Complains of uneasiness in the upper part of the incision, which has become disunited, and discharges sanies mixed with pus. Every other symptoms most favourable.

20th. The discharge of pus considerable, and of bad consistence. There being much debility, and a weak pulse, he was ordered decoction of cinchona with diluted sulphuric acid three times a day. His diet was also increased.

From this period, his health improved ; the pus became of better quality, and less in quantity. The tumor was much smaller, and undergoing rapid absorption.

The ligature came away three weeks after the operation, when the wound had nearly healed. The man was kept in the hospital two months, when he was discharged in perfect health, with the free use of the limb, and hardly any remains of the tumor.

Although many successful cases of tying the external iliac artery in femoral aneurism have already been published, yet every additional one, attended with such decided success as the present, and occasioning so little disturbance to the system, may have the good effect of giving greater confidence to practitioners.

Regent Street, Jun. 22d, 1821.

ON
LITHOTOMY,

By PHILIP M. MARTINEAU, Esq.

SENIOR SURGEON TO THE NORFOLK AND NORWICH HOSPITAL, AND
MEMBER OF THE ROYAL MEDICAL SOCIETY OF EDINBURGH.

Read May 1st, 1821.

THE subject of calculous disorders having of late excited considerable attention, and a return to the high operation recommended in preference to the lateral, at present in use, it may not be without some advantage to consider the success which has attended the lateral, and that which is likely to follow the high operation.

Mr. Carpue has lately given a very useful history of the various operations of lithotomy, and recommended the high operation as performed by Dr. Souberbielle at Paris; but unless the success be greater, or the operation less difficult than the lateral, it may not be found prudent to resort to it. It must be confessed, that, in Dr. Souberbielle's operation, many of the former dangerous consequences of the high operation are avoided, by the use of the sonde-de-dard; still, the reasons which

Mr. Carpué gives for preferring the high operation are by no means conclusive :

His first, " That it is generally performed in less time than the lateral operation."—This is not at all probable, as it is much more complicated, and the lateral seldom occupies more than two or three minutes.

Second. " There is less pain."—Being a double operation, it *cannot* be less painful, unless in the case of a very large stone, and where it breaks.

Third. " There is no fear of a fatal hæmorrhage."—Neither is there much from the lateral, as not one has occurred in the 574 patients cut in the Norwich Hospital, nor have I witnessed a fatal case in private practice.

Fourth. " There is no division of the prostate, nor of the inferior part of the bladder, nor is there any danger of wounding the rectum."—So seldom does inconvenience arise from any of those occurrences, that they should not be regarded as militating against the lateral operation.

Fifth. " The stone, if of a certain size, cannot be extracted by the lateral, but may be extracted by this method."—This is scarcely to be considered as a superiority; as it seldom occurs, that a stone is so large as not to be taken away by the lateral

operation ; only one such case has occurred in forty-seven years out of the 574 operations in the Norwich Hospital ; and, from a very large stone, much danger may arise, even in the high operation.

Sixth. “ A small stone is more readily discovered by this method, than by the lateral.”—But when did it happen that a stone was so small as not to be discovered in the lateral operation ? or, that it was not found to have come away with the rush of urine which follows the opening into the bladder ?

Seventh. “ If the stone break, the particles can be extracted with more certainty than in the lateral operation.”—In both operations a stone breaking must occasion great distress, and a small portion may be left ; but, for the most part, such particles come away afterwards with the urine, and it is not impossible that in the high operation some fragments may escape the finger, and then, *they* never *can* be discharged.

Eighth. “ If the stone is concealed in a cist, the cist can be destroyed, and the stone extracted.”—If a cyst envelopes a stone, it will not be felt by the sound, and no operation would then be attempted ; but stones in cysts are *rare* occurrences, if *ever*, and *never*, that I *knew*, was the cause of failure in the operation.

Ninth. "In case there should be any disease of the bladder, it can be examined, and proper means prescribed for the cure."—The discovery of the exact condition must be very uncertain, and the *cure* of a *diseased* bladder extremely precarious.

It were to be wished that Mr. Carpue had had favoured us with an account of the success of Dr. Souberbielle's practice in his new operation, but of this we are left in ignorance.

To Mr. Smith, of Bristol, we are much indebted for his laborious statistical inquiry into the frequency of stone in the bladder, given in the *Medico-Chirurgical Transactions*, in which he has related the result of practice in every part of the kingdom, and in no district has the success of operations been equal to that of Cheselden. Dr. Marcet, in his excellent treatise on calculous disorders, has given an average proportion of deaths through England from the lateral operation of stone, which he finds to be one in five; and mentioning the result of those performed in the Norwich Hospital as 1 in $7\frac{1}{4}$, he on the whole is accurate, but in an error when he ascribes the same success to *all* the surgeons who have succeeded each other, for they vary from 1 in $5\frac{1}{4}$ to 1 in 10. In the first years of my practice I was not very successful; and often witnessing many untoward circumstances in myself and others, which appeared to arise from the use of the cutting gorget, I determined to lay that instru-

ment aside, and employ the knife only, and the *blunt* gorget, as a conductor for the forceps; and as I have now so operated from the year 1804 to 1820 inclusive, a period of seventeen years, I shall subjoin the *name, age, and event* of each operation, with the weight of every stone, and it will be seen that in the seventeen years, eighty-four patients have been cut, ten of whom were private cases, and of this number only *two* died.

No.		Age.	When cut.	Cured.	Wt. of Stones.
1804.					
1	James Bennett	54	May 3.	1 month	1 oz. 2 drs.
2	Martin Benington	24	Sept. 22.	1 month	$\frac{1}{3}$ ounce.
3	Richard Bond	7	Nov. 1.	3 weeks	$2\frac{1}{2}$ drams.
1805.					
4	James Banyard	60	March 14.	1 month	$2\frac{1}{2}$ ounces.
5	John Hipkins	53	June 13.	5 weeks	5 scruples.
6	William Neave	66	June —	5 weeks	1 ounce.
7	Thomas Curson	66	June —	8 weeks	2 ounces.
8	Edw. Williamson	42	June 27.	8 weeks	6 drams.
9	James Woods	4	Aug. 1.	3 weeks	2 drams.
10	Frederick Smith	4	Aug. 15.	3 weeks	$1\frac{1}{3}$ dram.
11	William Osborn	$21\frac{1}{2}$	Oct. 18.	2 weeks	$2\frac{1}{2}$ grains.
12	Samuel Haws	17	Nov. 28.	5 weeks	$\frac{1}{2}$ ounce.
1806.					
13	Rebecca Miller	56	May 28.	3 weeks	2 ozs. 2 drs.
14	William Wright	6	Oct. 2.	2 weeks	2drs. 10grs.
15	John Stebbings	5	Oct. 23.	3 weeks	2 drams.
16	<i>Master Smith *</i>	10	Dec. 10.	3 weeks	not weighed
17	Abraham Nunn	5	Dec. 18.	4 weeks	$\frac{1}{2}$ ounce.
1807.					
18	<i>Mr. Bell</i>	58	June 28.	5 weeks	not weighed

* The names printed in Italics, are those of private patients, amounting to ten in number.

No.		Age.	When cut.	Cured.	Wt. of Stones.
19	John Craske	11	Nov. 5.	6 weeks	2 scruples.
20	John Belyard	13	Dec. 24.	6 weeks	10 grains.
1808.					
21	John Fell	60	March 24.	6 weeks	$\frac{1}{2}$ ounce.
22	Thomas Spanton	30	April 26.	1 month	$\frac{2}{3}$ ounces.
23	Samuel Dybale	33	May 12.	5 weeks	Incrusted Bongie, 2 drs. 30 weeks in the bladder
24	William Rackham	32	July 21.	9 weeks	1 oz. 1 dr.
25	Peter Payne	3	Aug. 4.	2 weeks	2 drs. 1 scr.
26	Mrs. P.	45	Sept. 10.	not noted	
27	John Mace	4	Oct. 6.	4 weeks	2 drams.
28	Master Postle	9	Nov. 12.	not noted	
1809.					
29	Robert Goss	30	Jan. 19.	6 weeks	$1\frac{1}{2}$ ounce.
30	Robert Newrick	11	March 30.	1 month	$6\frac{1}{2}$ drams.
31	Samuel Todd	9	March —	5 weeks	$1\frac{1}{2}$ dram.
32	Thomas Day	20	Nov. 30.	6 weeks	1 ounce.
1810.					
33	William Beverly	7	March 1.	5 weeks	$2\frac{1}{2}$ drams.
34	Hannah Greyton	19	March 29.	2 weeks	1 dram.
35	Christopher Press	5	May 17.	2 weeks	$\frac{1}{2}$ dram.
36	Samuel Farrow	12	June 7.	2 weeks	$2\frac{1}{2}$ drams.
37	George Yallop	2	June —	1 week	1 dram.
38	Henry Howlett	$2\frac{1}{2}$	June 28.	2 weeks	1 dram.
39	Thomas Smith	70	July 19.	7 weeks	1 ounce.
40	John Rawling	6	Aug. 9.	3 weeks	$1\frac{1}{2}$ dram.
41	Mr. Page	36	Oct. 20.	cured *	
42	James Roe	60	Nov. 1.	7 weeks	1 oz. 5 drs.
43	William Payment	13	Dec. 20.	6 weeks	$\frac{1}{2}$ ounce.
1811.					
44	Mrs. ———	48	April 12.	cured †	
45	William Cann	16	May 8.	3 weeks	few grains.
46	John Mann	29	Aug. 22.	6 weeks	$5\frac{1}{2}$ ounces.
47	Jemima Lands	23	Oct. 23.	2 weeks	3 drams.
48	Henry Howlett	$3\frac{1}{2}$	Sept. 12.	2 weeks	1 dr. 2d. time

* But not noted, being at a distance.

† But not noted.

No.		Age.	When cut.	Cured.	Wt. of Stones.
1812.					
49	William Howell	50	Jan. 24.	1 month	1 oz. 1 dr.
50	William Sallows	67	June 11.	died 26.	1½ dram.
51	James Crane	36	June —	2 weeks	½ dram.
52	William Moss	8	Dec. 31.	3 weeks	1½ dram.
1813.					
53	William Baxter	5	Feb. 4.	5 weeks	1 dram.
54	John Day	57	Sept. 9.	7 weeks	½ ounce.
1814.					
55	Elizabeth Burgess	4	May 5.	2 weeks	3 drams.
56	Abraham Byles	9	May —	2 weeks	5½ drams.
57	John Brett	54	June 16.	died 18.	4 ounces.
58	James Douglass	68	Oct. 5.	5 weeks	1½ ounce.
1815.					
59	Joel Isaac	41	June 8.	1 month	2 drams.
60	Nathaniel Miller	24	Oct. 5.	1 month	2 ozs. 5 drs.
61	Edward Rosier	65	Oct. 26.	9 weeks	½ dram.
1816.					
62	John Mitchell	23	Jan. 4.	5 weeks	a few grs.
63	William Notley	6	March 14.	3 weeks	2 drams.
64	Charles Hurrell	10	April 18.	2 weeks	1 oz. 1 dr.
65	John Jackson	60	May 9.	9 weeks	2drs. 10grs.
1817.					
66	Thomas Rivett	65	March 20.	1 month	½ ounce.
67	Robert Harrison	9	March —	5 weeks	2½ drams.
68	Richard Brereton	11	June 12.	1 month	2 drams.
69	Edward Aldridge	26	July 3.	6 weeks	½ ounce.
70	Charles Laton, Esq.	74	Sept. 1.	5 weeks	1 ounce.
71	James Moore	4	Oct. 23.	3 weeks	1 dr. 10 grs.
1818.					
72	William Chapman	24	March 12.	3 weeks	2drs. 10grs.
73	John Rush	56	June 11.	5 weeks	1 ounce.
74	Joseph Everett.	19	Nov. 26.	4 weeks	1½ ounce.
1819.					
75	William Barnaby	80	Nov. 11.	4 weeks	4 ounces.
76	James Bowman	39	Nov. —	5 weeks	5 drams.
77	Thomas Ford	23	Nov. —	4 weeks	1 oz. 2 drs.
78	— Welham, Esq.	70	Nov. 5.	5 weeks	not noted
79	B. Walker, Esq.	60	Oct. 2.	4 weeks	6 drams.

No.		Age.	When cut.	Cured.	Wt. of Stones.
80	Samuel Lawns	60	Dec. 23.	4 weeks	1 dram.
	1820.				
81	James Mackley	2 $\frac{1}{2}$	June 22.	1 month	1 $\frac{1}{2}$ dram.
82	William Parish	6	Oct. 26.	1 month	$\frac{1}{2}$ dram.
83	Wm. Nightman	15	Dec. 7.	2 weeks	$\frac{1}{2}$ ounce.
84	Mr. Stebbing	65	Jan. 19.	8 weeks	not noted.

In this number, no selection of patients was made, as I never rejected any one who was brought for operation. The patients were always kept a week or two in the house before operating, which familiarized them to the objects around them, and I believe "contributed greatly to remove fear, and that depression of spirits so unfavourable to their recovery. The diet has been regulated, and perhaps a dose or two of opening medicine given, but no other preparation.

In performing the operation, I have deviated very little from the directions given by Cheselden. The table on which the patient is placed is about two feet ten inches from the ground. I use a staff in which the groove is *much wider* and deeper than usual, and therefore more easily felt; and having passed it, and found the situation of the stone, I give it the assistant in nearly an upright and straight direction, and make my first incision long, deep, and nearly in a *line* with the raphe, which I think facilitates the re-union and cure. After the first incision, I look if the staff is not altered in its

situation, and then feeling for the groove, I introduce the point of the knife into it, as low down as I can, and cut the membranous part of the urethra, continuing my knife through the prostate into the bladder; when, instead of enlarging the wound downwards, and thus endangering the rectum, *I turn the edge of the blade towards the ischium*, and make a lateral enlargement of the wound in withdrawing the knife. I thus avoid cutting over and over again, which often does mischief, but can give no advantage over the two incisions, which I generally depend on, unless in very large subjects, where a little further dissecting may be required.

I now take the staff in my left hand, while I introduce the blunt gorget with my right, and by thus taking the management of the staff and gorget into my own hands, I can better direct the latter, and discover at once if it be slipping from the groove; but this will be prevented by depressing the gorget, while it is pushing on towards the bladder. On this depends very often the ease and success of the operation, for I have often seen it slip from the groove, and the operator has been baffled in getting into the bladder; when this occurs with the cutting gorget, still more danger follows. To perform this part of the operation with dexterity, I would recommend every young operator to practise the directing of the gorget in the groove of his staff, when he holds them in his hand, and he will perceive how easily the beak

may slip out, if the convex part of the staff be not familiar to his observation. It is of the greatest importance to observe, whether the assistant holding the staff, changes its direction; for I have often known an assistant so attentive to the operation, as to forget his own appointment, and draw the end of the staff out of the bladder.

After the gorget is in the bladder, I introduce my finger, and endeavour to feel the situation of the stone, which, if found, is a great advantage in the direction of the forceps to laying hold of it. I have never used any other than straight forceps, and it will be found more easy to extract a stone whole by rather large forceps, than with flat or small ones.

Should the stone be large, or there be any difficulty in the extraction, rather than use much force, while the forceps have a firm hold of the stone, I give the handles to an assistant, who is to draw them outwards, and upwards, while the part forming the stricture is cut, which is easily done, as the broad part of the blade becomes a director to the knife; and rather than lacerate, I have often repeated this enlargement of the inner wound, two or three times.

After the operation the slightest dressings are used, being nothing more than a piece of lint over the wound, and a pledget of tow, to exclude as

much as possible the admission of air, at all times aiming to heal the wound by the first intention, unless where any coagulum may be suspected, which may obstruct the flow of urine; which, if it occur, should be at once removed by passing the finger through it into the bladder, or introducing a female catheter. When much pain follows the operation, an opiate is given, and if tension should come on in the abdomen, fomentations, blisters, and opening the bowels will be useful; but I *never* found it requisite to bleed, and have known great mischief to succeed copious bleedings, as they have been followed by a debility never to be overcome. The effect of leeches I consider altogether useless; and I cannot help adding, that, notwithstanding their almost universal employment, they are seldom in *any case* of benefit, and always trifling, when substituted for general bleeding. For the first two or three days after the operation, I limit the patient to a mild diet, but if after that period no symptom of fever or inflammation appear, I allow a little meat, and mild beer. In general I believe it will be found in adults, that death follows oftener from exhaustion, after a tedious operation, or from despondency, in which the powers of life gradually decline, than from acute disease.

From Mr. Smith's statistical history of the disease, it is evident that it occurs more frequently in the district of Norfolk and Suffolk than in any

other in the united kingdom ; and while it is curious to speculate on the cause of this frequency, hitherto all research has been met by disappointment. The disease is almost exclusively confined to the poor ; and it appears frequently in infants, before diet can have much influence. The food of our poor is by no means bad, or sparing, and the people are generally remarkable for cleanliness. Whatever may be the diathesis giving rise to the formation of calculi, it is a remarkable fact, that after the extraction of a stone, scarcely a case occurs in which that condition of the constitution is not so changed, as to prevent the recurrence of the complaint ; for a second operation is a rare occurrence, and I believe generally may be traced to a stone, being broken in a first operation, and some fragment remaining as a future nucleus. I would conclude with Dr. Marcet, and Dr. Prout, “ that none of the circumstances commonly suspected to influence this disorder, can satisfactorily account for the variety of results, and that it arises from some general causes, independent of any peculiarities of food, or beverage, to which it has been usually ascribed.”

Norwich, January 3, 1821.

CASE
OF
CYNANCHE LARYNGEA,
IN WHICH
TRACHEOTOMY AND MERCURY
WERE SUCCESSFULLY EMPLOYED:
WITH REMARKS.

By WILLIAM HENRY PORTER, Esq. A. M.

MEMBER OF THE ROYAL COLLEGE OF SURGEONS IN IRELAND, ONE OF
THE SURGEONS TO THE MEATH HOSPITAL, AND COUNTY OF DUBLIN
INFIRMARY, AND TO THE DUBLIN GENERAL DISPENSARY.

COMMUNICATED BY

DR. ROGET.

Read, May 15th, 1821.

PREVIOUS to the institution of the Medical and Chirurgical Society of London, the affections of the lining membrane of the larynx, as contradistinguished from those of the trachea, and constituting in themselves severe and highly dangerous diseases, were but little known, and less understood. A few detached cases, indeed, had appeared in periodical works, wherein the symptoms of this disease were marked with sufficient accuracy, and the appearances on dissection after death related

with fidelity : but with the exception of the several papers on this subject to be found in the Transactions of the Society, no publications have ever appeared, in which attempts were made to ascertain the distinctive characters between this and other affections of the adjacent parts, or to establish any rational mode of practice, founded on just pathological principles. Under these circumstances, I am induced to offer the following case, with the few hasty remarks that accompany it, to the consideration of the society, with a view of corroborating the observations that have already been made on the nature and symptoms of the disease, and of adding to the numerous and valuable cases that have been published by the Society to elucidate so interesting a subject.

On entering the Meath Hospital on the morning of the 2d of February, I was informed that a person, named Michael O'Neil, had come to the institution, labouring under excessive difficulty of breathing, and was waiting for assistance: indeed it required little discrimination to point out the nature of the case, for, at the distance of several yards, I could distinctly hear the sibilous whistling noise peculiar to the breathing of persons suffering from cynanche laryngea. Without delay, therefore, I commenced an examination of the case.

He appeared to be a man about thirty years of age, strong and well formed, but with a slight

stoop. His face was pale and swollen ; his lips livid ; he sat with his mouth closed, but his nostrils widely extended ; his eyes seemed protruded and starting from their sockets, but at the same time the conjunctiva appeared very white, and covered with a watery suffusion. There was altogether an expression of indescribable anxiety in his countenance. His pulse was hurried, but not irregular ; his breathing very laborious ; he made two, three, or even more attempts at inspiration for one expiration, and his muscular heavings and convulsive struggles for breath were truly painful to behold. He breathed with a peculiar hissing or whistling sound, giving a distinct idea of the forcible passage of air through a contracted aperture, and he had almost lost his voice, the utmost endeavour at speech amounting only to an indistinct whisper. On being questioned as to the seat of his uneasiness, he pointed to the situation of the larynx, and even appeared to feel pain on this part being pressed externally. On account of the great difficulty of breathing, it was impossible to place the patient in a position such as would allow an examination of the state of the fauces ; but what could be seen exhibited no mark whatever of the existence of inflammation, and it afterwards appeared, from the patient's own account of himself, that at no time did he experience the smallest impediment to deglutition.

It was extremely difficult, from the patient's

inability to speak, to gain any information as to the duration of the disease. At first I was led to understand that it had occurred only that morning; and afterwards, he seemed to say he had been ill for five weeks; so, not knowing what to believe, and being guided chiefly by the urgency of the symptoms, I immediately ordered that he should have a bolus containing ten grains of the submuriate of mercury, and that a large quantity of blood should be taken from the arm. The veins of both arms were opened at once, and between thirty and forty ounces of blood were abstracted, whilst the patient sat erect: yet to the moment before the flow of blood was stopped, he exhibited scarcely a symptom of weakness, and the difficulty of breathing was not in the smallest degree alleviated. Feeling now that any other mode of treatment directed to the removal of inflammation would afford but a slender prospect of relief, and that, under existing circumstances, the life of the patient could not endure many hours, it was resolved that the operation of tracheotomy should be performed with as little delay as possible.

In about two hours afterwards, (a delay which unavoidable circumstances rendered necessary,) I returned to the hospital to perform the operation; and found the patient labouring under symptoms peculiarly unfavourable, considering so short an interval of time had elapsed. There was scarcely a pulse to be felt at the wrist; his extremities

were cold; he lay on his back, almost insensible, and seemed sinking with amazing rapidity. There was now not a moment to be lost; and with a view of disturbing the patient as little as possible, I resolved that he should not be carried from the ward, and having had the bed on which he lay removed to such a position as afforded the most favourable light, I performed the operation, assisted by my friends Messrs R. MacNamara, and T. Roney.

An incision was made nearly three inches in length, commencing a little above the cricoid cartilage, and continued towards the sternum, dividing the skin and cellular substance down to the muscles. At this period of the operation two small lymphatic glands were exposed, which protruded forwards, and interrupting the view of the parts, were cut away. The incision was then carried deeper, still preserving the exact central line of the neck, until a fascia covering the trachea was exposed; and here lay the greatest difficulty of the operation. The trachea was moved upwards and downwards behind this fascia, according to the patient's exertions to breathe, and it was impossible to open it satisfactorily until this membrane was completely removed*, a proceeding that

* This membrane, which is mentioned as a fascia, lies behind the sternothyroideus muscle, between it and the trachea, but with the latter it has no connexion. It is really the posterior part of the

occupied some time : it was however effected ; the trachea was laid bare in extent about three-fourths of an inch, and a circular portion removed, the diameter of which might have been nearly one-fourth of an inch. At the instant the bistoury was passed into the trachea, and the external air admitted, the patient seemed to experience an almost immediate change. He had before lain perfectly quiet, had scarcely winced under the knife, and appeared nearly insensible ; he now raised himself suddenly in the bed, and coughed with some violence. In a moment, however, he laid down again, and the operation was completed ; a silver tube was introduced into the aperture, and retained there by tapes passed through the rings attached to it. It is impossible to conceive any thing more instantaneous, or more complete, than the relief afforded by the operation. He now breathed freely through the wound, the convulsive muscular heavings ceased altogether, and the acts of inspiration and expiration were performed in regular and healthy alternations. I regret that I did not examine the state of the pulse after the operation, to ascertain if the restoration of respiration had any effect in altering its character.

It is to be remarked that all the steps of this

the cellular sheath of this muscle, and having no attachment to the trachea, that tube can move freely behind it, upwards and downwards, according to the patient's efforts for breath.

operation occupied but a few minutes, and though I believe the central slip connecting the two lobes of the thyroid gland (which in this instance must have been very small) was completely divided, there was scarcely any hæmorrhage; there was some from the superficial veins, but in all it did not amount to more than two or three ounces *.

The patient's bed was now rolled back into its proper place; and, as he seemed greatly exhausted, warm wine and water was administered; his feet were wrapped in flannel; warm bricks were applied to them; and having prescribed another bolus containing ten grains of the submuriate of mercury, I left him under the care of two intelligent pupils.

On visiting the patient in the evening, I found he had had some sleep during the day, and was

* The small quantity of blood lost by this patient should rather be considered as a fortunate circumstance attending this case, than one so frequently to be met with, as to warrant an operator's proceeding without caution. In two subjects that I dissected since this operation was performed, I found the central slip of the thyroid gland nearly an inch in breadth, and so full of small inosculating arteries, as would for a time have interrupted the operation by their bleeding. In both these subjects there was but one large thyroid vein, running precisely along the centre of the trachea, and which could not fail to be wounded by an incautious operator, but which certainly might easily be avoided by a careful dissection. This distribution of the vein is irregular, but I have, notwithstanding, seen it so frequently in the dead subject, that the possibility of its existence cannot be too strongly impressed on any person about to perform the operation of tracheotomy.

lying quietly, but extremely weak ; his breathing was regular through the wound ; his pulse about 110, but so small as scarcely to be felt under the finger. He had expectorated a small quantity of mucus through the canula. On being questioned as to his feelings, he wrote on a slate that he was wonderfully relieved. He now got ten grains more of the submuriate of mercury, making in all half a drachm in the course of this day ; and a purgative enema was directed to be administered in a short time, if the bowels were not previously freed.

February 3. (2d day.) He had slept pretty well during the night, and had five or six stools, after the administration of the enema ; but towards morning respiration became again in some degree impeded, and when I visited him he breathed with nearly the same sibilous hissing noise as before the operation. On examination, I found the tube had slipped out, and the size of the opening into the trachea was greatly diminished, from its edges being covered with inspissated mucus ; this was cleared away with the end of a probe, and as the canula was found too short, a longer one was introduced. The patient now felt comparatively comfortable, and expressed his sense of relief by signs. Pulse 110, but still extremely feeble, and his extremities had not yet recovered their natural warmth. His allowance of warm wine and water was therefore continued, and he had half a drachm

of the submuriate of mercury in three separate divided doses on this day also.

February 4. (3d day.) He had slept tolerably well the preceding night, but had one or two attacks of convulsive breathing from the wound being obstructed. Pulse 100, something fuller and soft; his bowels were free, but his breathing still obstructed by inspissated mucus, and he was sometimes obliged to resort to the natural opening of the larynx, and to use strong muscular exertions in inspiration, although in a far minor degree to what occurred previous to the operation. The wound required to be kept constantly clean in order to prevent these attacks of obstructed respiration, and the patient was greatly teased with the quantity of mucus that accumulated in the throat, and which he was obliged to expel through the wound. The expression of his countenance was much altered. He had lost all the wildness and anxiety that formerly characterized it, and the livid, swollen appearance of the cheeks and lips had been completely removed. He still remained very weak, and had warm wine and water as usual. He took on this day a scruple of the submuriate of mercury in two equally divided doses.

February 5. (4th day.) Had rested well, and had four evacuations from his bowels; pulse 100, and soft; appetite good; he asked for food, but could

not be indulged to the extent of his wishes. His mouth was sore from the use of mercury, and there was strong mercurial fœtor from it. He breathed partly through the wound, and partly through the rima glottidis, but without much noise, or any muscular exertion. On placing a finger on the wound so as to close the artificial opening, the amendment in his breathing became very apparent, and he could make a good attempt to speak. He had no cough, and in consequence of the mercury taking effect on his mouth, the large quantity was laid aside, and pills containing two grains each, combined with antimonial powder and opium, were ordered to be taken three times a day.

February 6th. (5th day.) Patient appeared very drowsy, seemingly from the effect of the opium he had taken, but signified that he was much better; had slept very well during the night, and had three evacuations from the bowels; pulse 102, soft, and rather fuller. He breathed entirely through the wound, but the passage of the air was accompanied by a hissing sound, in consequence of the edges of the opening into the trachea being covered with inspissated mucus, which required to be cleared away every two or three hours. In order to remedy this inconvenience, I resolved on enlarging the opening, and removed another portion of the trachea, which left the aperture three-eighths of an inch long, measuring from above. After this, there was no farther trouble in cleaning the wound,

and the patient lay perfectly quiet, breathing with great ease, and expectorating freely through the wound.

On visiting the patient in the evening, the advantage of having enlarged the opening was very apparent. There was not the least expression of anxiety or uneasiness in the countenance. His breathing very free; pulse full and soft; he had no cough; his appetite so good, that he had chicken this day. He wrote on a slate that he had experienced the greatest relief.

February 7th. (6th day.) Had slept extremely well, and the drowsiness observed on the preceding day had not entirely gone off; pulse 100; breathing very free, and without the smallest noise. The wound now discharged healthy pus in moderate quantity, some of which occasionally falling into the trachea excited cough, but he expectorated freely by the wound. The expression of his countenance was greatly improved, his complexion had partly returned, and his sister who attended him, said, that he appeared now nearly the same as before his illness. His mouth was very sore, and the ptyalism profuse.

February 8th. (7th day.) He had slept well, and was much better; breathed without any difficulty through the wound; coughed a little from pus getting into the trachea, but expectorated

freely ; pulse 96 ; his mouth very sore with a good deal of ptyalism, but not the slightest uneasiness in the situation of the larynx.

February 9th. (8th day.) The patient's mouth was very sore, but in other respects he was rapidly improving ; pulse 86 ; breathing very free through the wound. On placing my finger on the aperture in the trachea, he spoke in a full, clear, deep tone, and said that all uneasiness was completely removed.

After this day I made no report of the state of the patient, unless that he was recovering rapidly. His mouth continued for some days excessively sore, and there was profuse ptyalism ; to relieve which, he had some saline purges with the best effect ; and as the irritation continued in his mouth, and his jaws were greatly swollen, it was deemed right not to unite the external wound until these symptoms were abated, particularly as its remaining open did not produce any inconvenience. It was, however, completely united on the 22d of February : the patient was up, walking about the ward, and apparently in as good health as at any period of his life. He subsequently left the hospital on the 3d of March, and as I have seen him frequently since, I am satisfied not only of his entire, but permanent recovery.

When this poor man had completely recovered,

I endeavoured to ascertain from himself an accurate history of the case previous to his application at the Meath Hospital; and the following is the account he gave.—It was on the 16th December he first perceived a hoarseness in his voice, which seemed to have come on without any apparent cause; he had not committed any excess, nor exposed himself in any way to cold. This hoarseness lasted for ten days, but was unaccompanied throughout with difficulty of deglutition; soon after Christmas, the breathing became greatly obstructed, and then the distress he experienced drove him to seek relief at different charitable institutions. He had been bled and blistered at one, without the smallest benefit. He was twice bled at another, without relief. He applied to two private practitioners, from one of whom he got a great quantity of purgative and nauseating medicines, the latter of which relieved him more than any thing else; by the other he was ordered to apply blisters twice. On the very day before he applied at the hospital, there were three blisters applied in different situations; and as he observed that he was always much worse after the application of a blister, he attributed the great exacerbation of the disease to this circumstance. On the night before he came to the hospital, he felt a pain in the chest so severe as to prevent his lying down in bed, which continued all night and the next morning, until removed by the copious bleeding. Previous to the attack of cynanche laryngea, he

always imagined that he had bad lungs, he breathed short, and could not walk more than a mile without much distress. He had always a thick unpleasant sensation whilst speaking, and he says now that all these inconveniences are removed, and that he is really better than ever he was before; probably the comparative comfort he feels now, with what he experienced for seven or eight weeks previous to the operation, makes him exaggerate the real relief he obtained from it.

The history of this case presents a strong illustration of a fact already established by the observations of some of the most able practitioners, namely, that local and general bleeding, blisters, and the various internal means generally resorted to for the purpose of subduing inflammation, are usually inefficacious in relieving cynanche laryngea. Every remedy had been resorted to with a view to alleviate the distress under which O'Neill laboured. He was bled three several times, he had no less than seven blisters applied, he had taken a large quantity of medicine, both purgatives and antimonials, and it appears not any of these had the smallest efficacy in checking the progress of the complaint, or abating the violence of any of its symptoms. The case, then, is particularly instructive, not only in proving the impropriety of wasting time in the use of remedies, from which there cannot be a reasonable expectation of success, but in affording an-

other example of recovery under a very opposite mode of treatment.

It ought not, however, to be asserted, that an obstruction of blood will not at any period of the disease prove serviceable, although hitherto there does not seem to have been much benefit derived from it. But a very little consideration of the nature of the affection, and the morbid actions that are induced by it, will perhaps shew, why bleeding has not been of use, why it may prove injurious ; and will also point out those particular periods of the attack in which it may possibly be employed with advantage. When inflammation occurs in the larynx, like a similar affection in any other part, its progress may be rapid or slow, and the violence of its effects proportionally encreased or diminished. If it assume a very acute form, it is possible to conceive an effusion of fluid to take place in the submucous structure in such quantity, and with such rapidity *, as absolutely to close up the natural passage of the air, and literally destroy the patient by suffocation. This, however, is not the usual mode in which cynanche laryngea carries

* A melancholy proof of this lately occurred in the person of a young gentleman of high attainments : he only complained during the day of sore throat, and on the morning following was found in his bed quite dead. On dissection, the rima glottidis was found completely closed by the œdematous swelling of the mucous membrane.

off its victim. Death, instead of being so sudden, generally occurs from the third to the fifth or sixth day after the commencement of the disease ; and if we examine into the nature and history of such cases, it will be found that the fatal termination is not induced by the absolute or immediate exclusion of the air, but by diseased action being occasioned in the lungs from a too trivial supply of it. In almost all the dissections on record, such diseased action was found to have existed *, and it was this circumstance that rendered the operation of Bronchotomy unsuccessful, inasmuch as this operation, although it might give relief to the present difficulty of breathing, could not remove the disease that so long an interruption of that function had induced in the lungs. When acute inflammation

* In the cases related by Doctor Baillie, " the lungs did not collapse upon taking off the sternum and anterior extremities of the ribs." (Medical and Chirurgical Transactions, Vol. III.)

Doctor Farré mentions, " an appearance of slight congestion in the lungs," and an " effusion of serum into their reticular texture," as appearances on dissection of two cases that ran their course very speedily to a fatal termination. In one of these, Bronchotomy was performed. (Medico-Chirurgical Transactions, Vol. III.)

Mr. Lawrence mentions a case where the operation of Bronchotomy was performed with the greatest promise of success at first, but after eight days the patient died, and on examination " the chest exhibited marks of recent disease, and the lungs themselves were also considerably diseased ;" yet this patient did not manifest any accession of symptoms denoting the disease of the chest. (Medico-Chirurgical Transactions, Vol. VI.)

attacks the larynx, its first effect will be to produce a determination of blood to the part; the lining membrane will become highly vascular and thickened in its structure, and there will be a serous effusion under the mucous membrane. The tumefaction, however, seldom proceeds farther than partially to close up the natural aperture of the larynx, and thereby diminish the quantity of air admitted; and it is to the natural consequences of this diminution of the supply, that the symptoms attending the progress and termination of the complaint owe their origin. In this case, the vessels of the lungs soon become oppressed, and, in order to relieve themselves, they pour out a serous effusion into the bronchial cells. The blood cannot, in sufficient quantity, undergo those changes that are necessary for the support of life; the functions of the brain become impaired, and of course all the other functions of the body dependant on them must in proportion be imperfectly performed. Those violent muscular exertions that are made for the continuance of respiration, gradually become weaker, and the patient dies, worn out and exhausted.

When effusion has taken place in the submucous structure of the larynx, bleeding will not be the means most likely to procure its absorption, and the consequent re-establishment of a passage for the air: or when the bronchial cells have become loaded with fluid, the functions of the brain impaired, and the powers of life sinking with

rapidity, such a mode of practice will not only be inefficacious, but in the highest degree injurious and improper. But although the effects of inflammation, when once established, are not to be removed in this way, yet it may be very possible to prevent their occurrence; and a large, full and copious abstraction of blood might be employed with advantage, if the very first appearance of the disease could be laid hold on, before the convulsive heavings and muscular exertions that indicate an oppressed state of the lungs appear, or before there is reason to believe the rima glottidis obstructed to such an extent as would subsequently induce such a state of disease. It is possible, too, that bleeding may delay the occurrence of effusion into the bronchial cells. The pain felt by O'Neill, shortly after the accession of symptoms that made him apply at the hospital, might perhaps have been the forerunner of it; and he referred the relief he experienced from this distressing symptom entirely to the large bleeding, which (he said) removed it instantaneously. The abstraction of blood, however, in such cases, is always hazardous, because it is almost impossible to ascertain the exact time when it might be called for, or the exact symptom to which its employment might be adapted; and it is, moreover, dangerous in one respect, that the powers of life soon become greatly depressed in patients suffering under obstructed respiration, and where it fails of yielding immediate relief, it will

almost invariably have a tendency to accelerate a fatal termination of the case.

Of the efficacy of blisters in cynanche laryngea, whether of the acute or chronic form, it is impossible to speak in favourable terms. In inflammatory diseases their application is generally hazardous, unless measures of depletion have been previously resorted to, and they have been frequently known to aggravate instead of relieving, particularly if applied to the immediate neighbourhood of the disease; and it will not be judicious, in so formidable a complaint, to admit of as long a delay as might be necessary in order to use these precautionary measures. Indeed, were there no other objection to the use of blisters, the slowness of their operation would be sufficient, in a disease that runs its course so speedily, and in which a few hours may make the difference of safety or destruction. But besides this, the testimony of experience is decidedly against them. I have not found one authentic case in which it is clearly and unequivocally shewn that any decided benefit was derived from their application; and perhaps it is not too much to say that, at best, they will be found useless. There is one case in which the application of a *very large blister* * seemed to have

* Case of Dr. J. M. H.—Med.-Chir. Transactions, Vol. VI. page 135. It may be questioned whether this case could strictly be called inflammation of the larynx. The patient had not the well

produced a recovery, as the symptoms were a little relieved after it; but it by no means could be marked as the most efficacious remedy, because the patient had frequent attacks of the sense of strangulation afterwards, and there were other more decisive remedies employed, to which the recovery should be attributed. The effect of blisters in the case of O'Neill, certainly would not encourage me to recommend them, for he had no less than seven, three of which were applied on the day before his most severe attack, and from seeing what were the effects of that one which was placed on the front of the throat, I can safely say, that it was a very large one.

In those cases of cynanche laryngea where it has been deemed advisable to make an artificial passage for the air to the lungs, the operation has been sometimes followed by recovery, and sometimes otherwise. It would of course be in vain to expect unvarying, uninterrupted success from any one mode of practice; but quite independently of

well marked symptoms that characterize the disease; and although in every species of cynanche laryngea there are spasmodic exacerbations, yet this case was perhaps altogether purely spasmodic, and yielded to the use of the lancet. From one bleeding "the patient derived much benefit," although the paroxysms still recurred with abated violence; and the second time the lancet was employed, it "proved truly efficacious." From this period his safety seemed to be ensured.

that consideration, there are, perhaps, some cases in which it could not be reasonably hoped for. Whenever effusion has taken place into the bronchial cells, which in acute cases will very speedily happen, the admission of air into the trachea cannot remove the symptoms, although it may alleviate them; and in such the most to be expected is, that the patient shall be freed from those violent exertions that he is obliged to make to force inspiration through a contracted aperture. If the lungs be diseased, tracheotomy is merely a palliative measure, and it is perhaps only successful where it is preventive, that is, where it is resorted to before the lungs have become oppressed, and consequently removes the exciting cause of the oppression. Under this view of the subject, the operation cannot be performed too early after the nature of the disease is ascertained, provided it be acute in its character, and the difficulty of breathing so great as to render it impossible that the lungs can long retain their healthy actions with so diminished a supply of air.

It is, however, easy to conceive the existence of cynanche laryngea in so mild and chronic a form as to be present for a length of time without causing the lungs to be in the smallest degree affected. The case I have related above is an example of this nature; for it commenced so early as the 16th December, and continued for seven weeks before

any decided relief was obtained. The case related by * Doctor Marshall Hall is another example of the same kind, for it existed there for eleven months ; and yet in neither of these instances can we suppose the lungs to have been diseased, or they would not subsequently have had so favourable a termination. In both these cases, it is true, tracheotomy was performed, and the cures afterwards completed by the use of mercury ; but it becomes a question, whether the operation might not have been altogether avoided, had the medicine been resorted to in the commencement, whilst the symptoms were not aggravated, and before the excessive difficulty of breathing had absolutely rendered the operation the only chance the patients had of existence. It was remarkable in the case of O'Neill, that the moment his mouth became sore, there seemed to be a decided amendment in his respiration ; and in proportion as the ptyalism increased, the obstruction in the larynx sensibly diminished. The same fact may be learned from the report of Doctor Hall's case, for he says that when " the mouth became sore," the patient " experienced a mitigation of the difficulty in swallowing, and on applying the finger to the opening into the larynx, that she could breathe with greater facility than before the operation ;" and if tracheotomy be merely a palliative measure, to allow a free passage of air to the lungs, until the disease in the

* Medico-Chir. Transactions, Vol. X. Part 1.

larynx either declines spontaneously, or is removed by medicine, there can be no reason for supposing that it might not in every case similar to these be avoided by speedily bringing the patient under the influence of that remedy, which has hitherto been alone found efficacious in removing the disease*.

It would be extremely difficult for a practitioner to distinguish at first those cases in which he might trust alone to the use of mercury, in the hope of curing the disease without resorting to an operation; and it would be more difficult to point out those symptoms that might serve to guide and direct him. In all cases of cynanche laryngea in the acute form, there is scarcely a moment to be lost; the disease runs its course with extreme rapidity, and the only chance of safety to the patient will be from giving a free passage to the air. If, then, the disease has occurred suddenly, and its symptoms attained an alarming height in a

* Many instances of the efficacy of mercury in the cure of chronic inflammation of the larynx, without resorting to any previous operation, have come within my own knowledge. Amongst others, one is very remarkable, which was under the care of my friend Dr. Charles Johnson. The patient was a lady, beyond the meridian of life, and the difficulty of breathing at times so urgent, that her friends entertained little hope of her recovery, and were even warned by another practitioner, that the period of her sufferings was not far distant. By the rapid exhibition of mercury, however, so as to induce a speedy affection of the mouth, the symptoms soon began to yield, and a complete and permanent recovery was the result.

short space of time, if there is excessive difficulty of breathing, and laborious muscular efforts to carry it on, the practitioner has but one resource, and that one will be in an operation. And although it is very possible that even in this he may not prove successful, if diseased action has already been formed in the lungs, yet he will be justified in the attempt, from the consideration that it is the only hope of safety he can hold out to his patient, and he will at all events, be in some degree rewarded by the immediate alleviation it will afford to the most distressing symptoms. But acute inflammation of the larynx is very speedy in its effects, and usually, if unrelieved, terminates fatally in six or eight days at the farthest. If then a patient has existed for weeks under obstructed respiration; if it originally commenced with mildness, and encreased by slow degrees; if, generally, it is unaccompanied by any very terrible distress, although there will be violent and severe spasmodic exacerbations, yet it is to be considered a chronic disease, and there will be time for trying the efficacy of medicine. As yet we know of no remedy that can be placed in competition with mercury in the treatment of this disease, provided it be administered in such quantity, and in such manner as will speedily bring the constitution under its influence; at the same time, its use does not preclude the adoption of precautionary measures by topical bleeding, or otherwise, to prevent the irritation of the medicine encreasing the local disorder, and a

patient may be closely watched during its progress, lest any sudden or violent exacerbations should occur that would threaten the lungs with disease; in which case Bronchotomy may be safely employed, and will, in all probability, be attended with the most favourable results.

The most disagreeable circumstance attending the treatment of cynanché laryngea is, that the precise nature of the attack cannot be ascertained, either from the history of the case, or a consideration of its symptoms. It has been found by dissection after death, that the larynx is liable to a variety of diseased affections, all more or less interfering with its functions, and all, of course, exhibiting nearly the same or similar symptoms. Thus the lining membrane has been thickened, puckered, and ulcerated; there have been collections of purulent matter under the membrane; the cartilages have been eroded and ulcerated; with a variety of other diseased appearances, not one of which could be accurately distinguished from the other during life. The symptoms produced by these last mentioned affections will usually assume a chronic form, and may in this way produce great disappointment, if sanguine expectations of a cure are entertained merely on the ground of its being a chronic disease, and its being known that mercury has frequently been employed with success in its treatment. But such derangements of structure are in all probability beyond the reach of art.

Bronchotomy has not been attended with any permanent benefit, although it has relieved the difficulty of breathing by releasing the diseased larynx from the performance of its functions; and perhaps every medical treatment that could be warranted by the symptoms has also been unsuccessful. It cannot be denied that under such unfavourable circumstances, mercury may be worse than useless; but then it is at the same time the remedy that promises most, because it will relieve in cases where recovery is possible; and where the exact nature of the affection cannot be distinctly ascertained, we should always give our patient at least the most favourable chance.

Kildare Street, Dublin, April 24, 1821.

CASE

OF A.

LARGE ADIPOSE TUMOR

SUCCESSFULLY EXTIRPATED.

By **ASTLEY COOPER, Esq. F.R.S.**
SURGEON TO GUY'S HOSPITAL, AND LECTURER IN ANATOMY
AND SURGERY.

Read June 26, 1821.

ADIPOSE tumors acquire a greater magnitude than any other swelling ever reaches. They are not composed of fatty matter only, but the adipose membrane is increased, and their structure is similar, only somewhat more compact, to that of the fatty membrane in other parts of the body.

The cases which have occurred to my knowledge, in which these tumors acquired great magnitude, and have been successfully extirpated, were one which weighed 14lb. 10 $\frac{3}{4}$ removed by myself, in Guy's Hospital, from Mrs. Smith, an inn-keeper at Yarmouth, in Norfolk, one which was removed by Mr. Cline from Mr. Ayres, a silversmith, in Fenchurch Street, which weighed 15lb. Mr. Cope-

land also extirpated a swelling of this kind from the thigh of Mrs. ——— of Tottenham, the weight of which was 22lb.; but the magnitude of the swelling in the following case, was considerably greater than the largest of these.

As these tumors usually arise from those parts of the body in which the larger arteries are not found, and as they are commonly pendulous and extremely moveable, they do not lead to so formidable an operation as many swellings which are of less bulk, but which are either more vascular in their structure, or are seated in the neighbourhood of the larger blood-vessels. But the swelling in question was placed upon the abdomen, enveloping the umbilicus, and occupying that portion of the linea alba at which herniæ are so often found; and it was impossible to be quite sure that this swelling might not contain protruded omentum. This tumor therefore presented more than common danger and difficulty in the operation, independently of its enormous size.

CASE.

Nicholas Pearson, aged 57, on the 26th of September, 1820, was admitted into Guy's Hospital, for the purpose of having a large tumor removed, which grew from the front of the abdomen; and of which he gave the following account:

At the age of 17 he perceived a swelling, about the size of a pea, situated midway between the umbilicus and ensiform cartilage; it was unattended with pain, and did not in any way interfere with his duties as a sailor, which was, at that time his occupation; but it gradually enlarged, and in sixteen years had acquired the magnitude of the head of a child, still producing no uneasiness, except from the inconvenience of its size and weight, which was yet insufficient to oblige him to give up his employment. The tumor, however, continued gradually to increase; and in the space of twenty-nine years from its commencement, had acquired such a bulk, as to render him no longer fitted for the sea, or any useful occupation, he being obliged to support the tumor by a bandage passed round the neck; but, even at this advanced period, it was productive of no pain.

At about this time he was attacked with fever, which, to use his own expression, “settled in the tumor;” and from his description, there is no doubt, it became inflamed, with subsequent ulceration on its surface.

The tumor retained sensibility, but evidently not to the degree of the healthy natural parts of the body; for upon one occasion, while sitting before the fire, an extensive portion of the surface of the tumor was burnt, before he was aware of the circumstance. He did not recover

from the ill effects of this accident for a length of time.

In this state, without any other change than the gradual increase of the tumor, he sustained his disease for forty years, when the tumor had acquired the following prodigious size; measuring one yard and a quarter around its greatest circumference, and eighteen inches around its neck, extending, when he was sitting down, to his knees; it had increased most rapidly during the last three years, but, up to the time of his admission, he expressed no other inconvenience than that of the weight he had to support, which of itself rendered him so perfectly incapable of obtaining his bread, that he was driven to the necessity of its removal; and on the 13th of October 1820, the operation was performed in the theatre of Guy's Hospital, in the following manner:—

The first step of the operation was to draw the tumor to the patient's right side, and then to make an incision through the integuments and cellular membrane at its base; separating the swelling so far from its connections as to be enabled to ascertain that it was not connected with hernia, or in any way with the abdomen; but in this investigation it was found, that a considerable portion, much more sensitive than the rest of the tumor, did project from the swelling into the umbilicus, but that it was not a hernia. Having ascertained this important

point, the remaining part of the operation consisted in a simple dissection, with the application of ligatures to the veins which were of considerable size, and bled freely, and to the arteries, which, considering the bulk of the tumor, were not so much enlarged as might have been reasonably expected. The patient lost but an inconsiderable quantity of blood during the operation.

The weight of the tumor was taken immediately after its removal, which, independently of the blood which it contained, was 37 lbs. 10 oz.

No bad symptoms followed the operation, excepting a slight pain in his head on the second day. The wound healed partly by adhesion, but principally by granulation; in eight days he was sufficiently well to rise from his bed, and to walk in his ward.

In order to ascertain the relative weight of the tumor of the patient, my apprentice, Mr. D. Babington, weighed him after his complete recovery, and found that the tumor was rather more than one-fourth the weight of the man. Had this experiment been tried before the operation had been performed, it would of course have been attended with a more correct and satisfactory result.

The tumor is preserved in the Museum at St. Thomas's Hospital.

APPENDIX I.

Abstract of the account of a Case of Adhesion of the Labia Pudendi in a Negro, obstructing Delivery, drawn up by DR. WILLIAM RUSSELL, of Jamaica : presented to the Society by WILLIAM ROOTS, ESQ. Surgeon, of Kingston on Thames, dated Cascade, St. Mary, Jamaica, June 12, 1819.

MR. THOMAS GEOGHAGEN had amongst his Negroes in Jamaica a woman named Avis, about 27 years of age, of the Eboe nation, who, on declaring herself in an advanced state of pregnancy, asserted at the same time that she could not be delivered, as there was no external passage, and therefore expected that she should die in consequence. There was found on examination to be a cicatrix extending from the mons Veneris to within an inch of the anus, where there existed a small orifice barely sufficient for the introduction of a small female catheter, through which orifice the urine and menses exuded. This cicatrix appeared to have been the consequence of an operation which had been performed upon her in her native country when a child, and which she said was commonly practised with the female offspring of families of rank, as a security against improper connections. The adhesion being removed by an incision with a sharp pointed bistoury, the delivery was easily accomplished, and future adhesion prevented by interposing a bougie till the wound of the labia on each side had healed.

APPENDIX II.

Account of a Child of Three Years of Age in whom there appeared Signs of Puberty. Abstracted from a paper communicated to the Society, by GILBERT BRESCHET, M.D. Superintendent of the Anatomical Department of the Faculty of Medicine in Paris, dated December, 1820.

JAMES A. SAVIN, the subject of this memoir, was born at Montmorillon, October 20th, 1817, of healthy and well-formed parents. His father was 29, his mother 27 years of age at the time of his birth. He now weighs 50 pounds (Avoirdupois), and is three feet six inches three quarters (English) in height. The penis measured in length from the pubis to the extremity of the glans nearly four inches when in a flaccid, and five inches and a quarter when in a state of erection. The circumference of the glans in the former condition was three inches and a half; in the latter, three inches and three quarters. All the functions appear to be in a healthy and vigorous state. A spermatic odor exhales from his body, and the stains occasionally observed on his linen would lead to the belief that semen is secreted, although there is no other proof of this secretion taking place. His gait is free from the vacillation which characterizes that of children of his age, and his muscles are more developed, and more vigorous. He is of an intrepid disposition, conscious of his power, disdaining to engage with children of his own years; and placing his chief delight in contests of strength with those with whom he is a more equal match. His voice is sonorous, and corresponding in its tone to that of a youth of 16 or 18 years of age, and, in a word, has the character of puberty. His style of expression is laconic, abrupt, and often imperative. His intellect, however, does not appear to have made a progress at all corresponding to that of the genital system; for though his memory is good, his judgment is not at all superior to what might be expected from his age and

the education he has received, and his imagination is not peculiarly vivid.

The testicles are not enlarged in the same degree as the penis. The prepuce is voluminous, and is accumulated behind the glans, constituting a natural paraphymosis. The sexual instinct has manifested itself by the frequent erection of this organ, on occasions calculated to excite it: it has not, however, led to the practice of onanism. The teeth made their appearance unusually early. Dr. Spurzheim, who was desired by Dr. Breschet to examine the external form of the head of this boy, reported that the cerebellum appeared to have acquired a very considerable development; and he seemed to think even that very few adults have that organ of so great a size. Dr. Breschet, however, expressly states that he declines giving any opinion as to the truth of the peculiar physiological system which relates to the influence of the cerebellum on the genital system of organs.

REFERENCES TO THE PLATES.

Plate V.—Exhibits the appearance of the tumor in the case of Carotid Aneurism, described by Mr. Coates, p. 278.

Plate VI.—Is illustrative of Mr. Astley Cooper's paper on the extraction of Calculi from the Urinary Bladder, in certain cases, without the employment of cutting instruments, p. 349.

Fig. 1.—*a a.* The Prostate Gland. (See p. 357.)

b b. The Bladder.

c. Sac behind the Prostate Gland which is frequently formed in enlargements of that gland, and which often contains numerous calculi.

d. A Sacculus formed by the interruption to the passage of the urine, in a case of enlarged prostate.

Fig. 2.—Some of the Stones removed from the Rev. Mr. Bullen.

Fig. 3.—The largest stones which Mr. Cooper could remove in the dead body by means of the urethral forceps.

Plate VI.—continued.

Fig. 4.—The instrument with its handle, as used in the case of the Rev. Mr. Bullel. (See p. 359.)

Fig. 5.—The same instrument without the handle.

Plate VII.—Represents the appearance of the patient having the large adipose tumor which was successfully removed by Mr. A. Cooper, as described in his paper, p. 440.

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